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Today's Navies *in the light of* Tomorrow's Attacks

Rear Admiral M. R. Browning, *United States Navy* (Ret.)

ARE the navies of today capable of conversion to meet the threat of the weapons of tomorrow? That is the provocative question which has been asked with increasing frequency in the last few years. Long before the news of the first atomic bomb explosion at Hiroshima in 1945 had broken across the world, the future of the battleship, in particular, and of all surface men-of-war in general, had been under bitter and incessant attack by the more extreme advocates of air power.

In the early 1920's, this clamor for the scrapping of battleships had become so insistent that repeated and costly experiments were entered into in those years in the hope of proving, one way or the other, whether the surface ship had lost her effectiveness as a vital element in the nation's security organization. Not only the United States, but other world powers as well, experienced similar bitter technical controversies to agitate the development policies of their armed force structures.

Of the great powers of that day, Germany came closest to a one hundred per cent acceptance of the extreme view that the airplane had superseded the surface ship as a weapon at sea, and, carried away by the over-confidence in her air fleet which that conviction engendered and nourished, she plunged the world into the second global war and herself into her second national eclipse within the space of a quarter of a century.

Today, the basic question is still very much a live one and it is now being asked in the expanded form of the opening sentence of this article. Many of the men who are asking it now are men whose judgment is of demonstrated maturity and whose patriotism is of unquestioned responsibility. The advent of the atomic bomb and of supersonic weapons has brought about this revival of the old indictment. The cycle of the pre-war years, of claim and counter-claim, of argument and debate and costly experimental investigations, is again crossing the stage. Far-reaching modifications in our defense structure and policies have already been made as a result of the study of the possible future impact of the new weapons on the technique of war, and it is a virtual certainty that there will be more and even greater changes as our knowledge and experience of them expand.

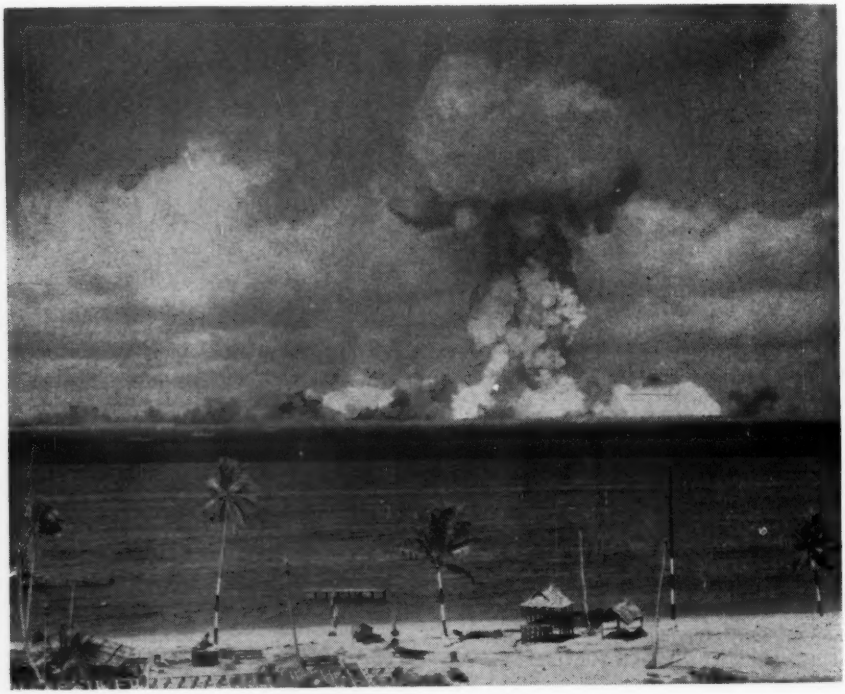
Entire Navy Involved

It is to be noted that, in its fullest

Can today's navies stand up to tomorrow's attacks? Admiral Browning believes they can, by adapting the new weapons to our own use and devising effective counter weapons and passive defense measures

interpretation, the question at issue in this discussion involves the existence, not merely of some or all of the material equipment of a fleet of today, but of a navy in its entirety. Not only are warships with their guns, bombs, aircraft, armor and myriad related equipments

ress and imagination, and a personnel imbued with the essence of these intangible but indestructible elements of naval power and its employment. A navy may properly be defined as the primary instrument for wielding sea power. If—AND ONLY IF—the new weapons can demonstrate an equal



Today's navy undergoing tomorrow's attack—the Bikini atomic bomb test.—U.S. Navy photo.

under indictment, but so, also, is the basic concept of sea power. If today's navies cannot survive the advent of the new weapons, then no navy can, for today's navies are more than a mere collection of ships and their armaments; they, each, embody history, tradition, tactical and strategic principles, adaptability, prog-

or superior capacity to wield sea power *when in the hands of men who are not trained seamen*, they can and should replace the navies of the world.

It calls for little imagination to perceive the far-reaching implication of such an eventuality as that embodied in the closing words of the last paragraph.

Obviously, if that condition comes to pass, the historic term "Sea Power" will have lost all real significance and its identity will have been swallowed up by a new and all-inclusive concept of "Power" which commands whatever area of the surface of the earth, whether sea or land mass, together with the atmosphere above it. This being so, what is to become of the other existing conventional elements of military strength—today's armies and air forces, elements whose respective characteristics as entities depend, like those of their sister naval service, upon the peculiarities of the media in which they primarily operate? Are we to find that national offensive armaments boil down to atomic explosives and supersonic missiles to take them to their targets, together with the push-button technicians required for their production and launching, while, on the defensive side, home defense measures and installations are reduced to those developed to either ward off an enemy's atomic attack or to minimize its impact when it strikes?

Inspecting damage on the Cruiser *USS Pensacola* after the Bikini atom bomb test.—U.S. Navy photo.

All Forces Affected

If sea power has been, or later is, eliminated from the stage of international

competition and conflict, then so have, or will be, land power and air power. If today's navies are finished, equally so are today's ground and air forces. The parallels are clear and the logic is inescapable; atomic explosives and supersonic weapons are as readily usable at sea as they are on shore, or in the air over either; ships, men, supplies, installations and communication lines are equally and gravely vulnerable to their attack whether they are at sea or in port, along the coast or in the interior, in the lower atmosphere or in the stratosphere.

If these weapons, in the hands of a new corps of technicians, are to prove to be the most effective in existence against any and all targets without regard to their location or that of the bases from which they operate, then there is no longer any economy in, or other excuse for, maintaining different branches of military strength. From such a premise, the conclusion inevitably follows that a nation's sole need in the event of war is an adequate supersonic armed force combined with the best available passive defense against atomic and supersonic attack.

It is to be doubted that any responsible statesman or soldier in the world is prepared to accept such a conclusion today. There is certainly so far no evidence that any nation is proceeding with, or even actively preparing for, the complete scrapping of any one of the conventional arms. Naval, ground and air forces as we have known them in the past are still the only existing efficacious forms of national insurance against aggression and enslavement. It will be a bold and foolhardy people, indeed, who cancel that insurance in the dubious light of what is presently known or can be reasonably guessed as to the adequacy of two new and little comprehended destructive agents to replace it.

Atomic Capabilities and Limitations

Offensively, we know a little—very little—about what atomic energy and supersonic speeds can do; defensively, we know almost nothing. We have heard and read the usual fantastic claims and prophesies which are always made by the extreme supporters of a new weapon. A segment of our press, eager to exploit the sensational aspects of new weapons, has clothed them in pseudo-reality. Actually, on the basis of what has been demonstrated as to their capabilities and limitations, the facts may be broadly stated as follows:

(a) Atomic explosives are extremely powerful and destructive in comparison with any agents heretofore known. They combine terrific blast effect with great heat and powerful induced radioactivity in the area of detonation. This intense and prolonged ray activity forms perhaps the most serious problem from the military standpoint.

(b) Resilience in a structure in the way of an atomic blast gives it an unexpectedly high degree of ability to escape demolition.

(c) The heat from an atomic blast is of such evanescent nature that its adverse effect upon material does not appear to be a major factor in the military effectiveness of the explosive.

(d) At present, little that can be made public is known about the degree to which the attendant radioactivity may expand the ultimate destructiveness of an atomic explosion. As a significant corollary, little is likewise known with respect to measures which may be discovered or devised to reduce the effects of that radioactivity upon target personnel and material.

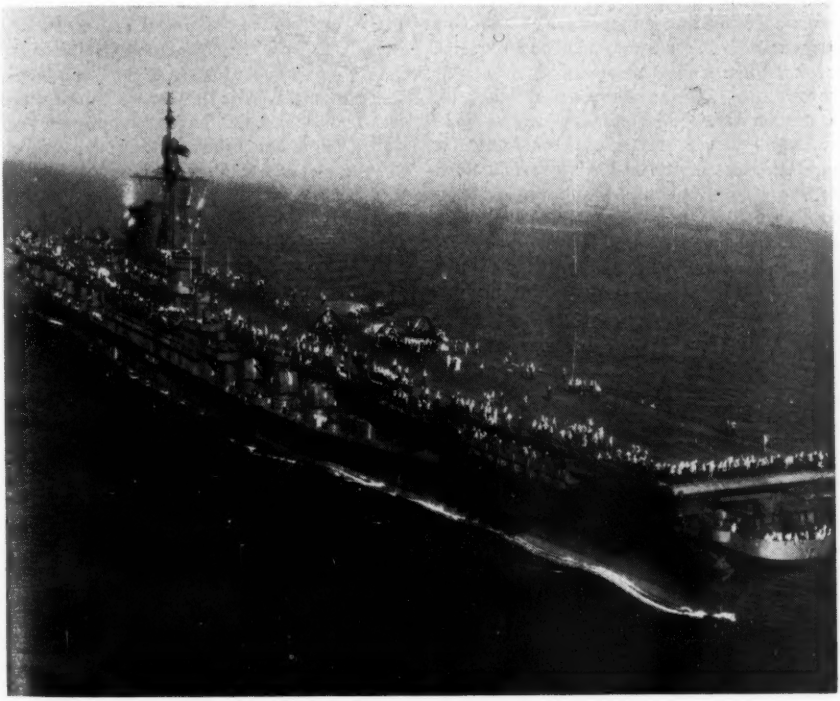
(e) Atomic explosives are scarce, expensive and time-consuming to produce and assemble, and are clumsy and relatively difficult to store, handle and use.

(f) Supersonic missiles are definitely limited in total effective range to far below the extravagant figures which are frequently cited, and are incapable of any real precision in free flight at ranges other

than those which are relatively short.

In general terms, this is the factual knowledge upon which must be based today any realistic prophesies for the future. From this basic knowledge it may reasonably be predicted that:

(a) Atomic bombs will be improved, simplified, and made less expensive and



The *USS Midway*, from which a V-2 rocket was fired successfully.—U.S. Navy photo.

difficult to store, produce, handle and use. Atomic explosives can and will be incorporated in supersonic missiles.

(b) Supersonic missiles, themselves, will improve in total range and in accuracy, but will probably never overcome the necessity for controlled flight to achieve an acceptable degree of precision at long ranges.

(c) While atomic explosive power and destructiveness may—and probably will—increase measurably, the features which now characterize its detonation will not change materially. Structural resilience and heat conductivity will continue to afford a surprisingly high degree of material immunity to the demolition and heat effects of the blast. With regard to accompanying redioactivity, the phenomenon itself is not strange to science, and the consequences to both personnel and equipment in the way of an explosion,

provided no more effective shielding than now exists is present, can be foreseen. The main development to be looked for in connection with this feature is the discovery of practical and efficient means to minimize its damage effect.

To the above may be added the general observation that, so far, both science and the world at large have been vouchsafed only a brief glimpse into the physics of atomic fission and supersonics. Under the impetus of the all-out war effort which brought man this first opportunity to peer through a hitherto unbreached wall, all attention and development work were focussed primarily upon the destructive potentialities of the new discoveries. Now, constructive application and exploitation are receiving their due of investigation and study, and, hand in hand with them, the search for countermeasures to offset their destructive power is in full swing.

Countermeasures

The human race has never yet discovered or produced a weapon for which a counter has not been shortly devised. There is no more reason to doubt that such defense means against these latest two will appear in the near future than there is reason to doubt that night will continue to follow day. Fundamentally, our new weapons are merely controlled physical phenomena. What is produced and controlled by science can be neutralized or halted and turned back upon itself by that same science. The requisite knowledge and means for this are implicit in the original discoveries of the controls for activating and controlling those phenomena: the counters are complements to the weapons and will inevitably follow hard on their heels. All history bears witness to this fact.

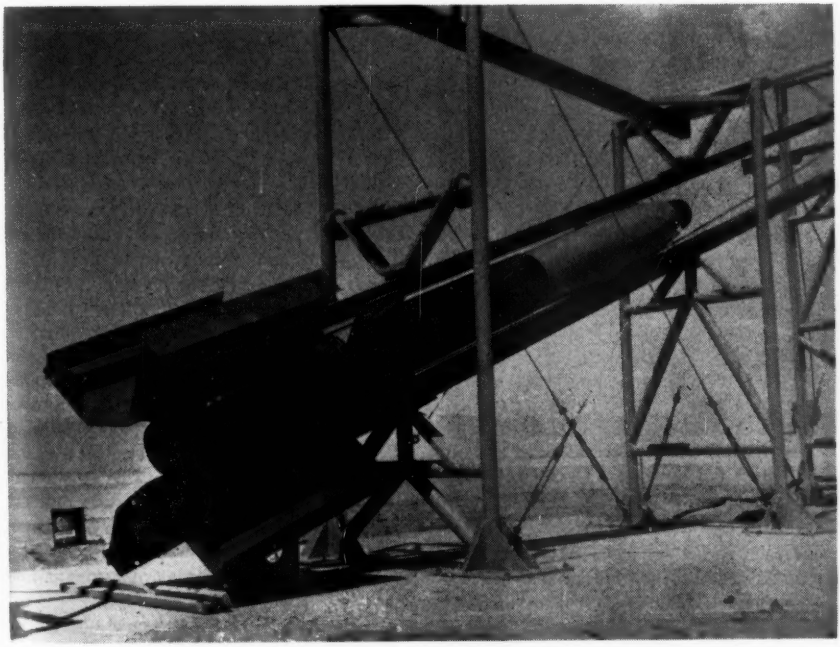
Up to this point, the theme of this discussion has been that atomic explosives and supersonic weapons will not do away with navies unless they also do away with armies and air forces, and that this will not occur in the foreseeable future. What, then, are the specific implications which these new agents hold for today's navies? What adaptation—conversion, if you will—must be made to meet their threat?

In attempting to answer that question, it should be borne in mind that mobile units at sea enjoy certain inherent advantages in avoiding or minimizing damage from attack which their land-operating counterparts do not possess to anything like the same extent. Ships have relatively far greater freedom of maneuver than do bodies of men or mechanized units on land, while air bases, supply dumps, fixed installations and the like ashore have none at all. Forces afloat and their individual components are not normally subject to restrictive terrain contours, defiles, etc., and may, therefore, change direction and speed of movement at will. If equipped for submergence, they may dive and obtain a very high degree of immunity from normal observation and attack without surrendering their freedom of movement. Another advantage lies in the rapidity with which naval forces can concentrate or disperse and their consequent ability to operate in efficient tactical concentrations while the individual units are separated by relatively wide stretches of open water. A third and closely related factor stems from the ease with which efficient communication—visual, sound, radio and electronic—may be maintained at sea, due primarily, of course, to the ocean's flat surface and unbroken horizons. Last but not least, there is the fact that the sea, itself, affords a "cushion" for the closely-knit but resilient structures of steel ships. A modern warship can absorb a tremendous thrust impact as a result of being fluid-borne; a battleship moves crabwise several feet in taking the recoil of her own main battery broadside.

No Revolutionary Changes

Will the general characteristics of combatant ships, such as shape, size, contour,

etc., have to be changed to meet atomic and supersonic attack? Not to any revolutionary degree. Increase in displacement is and always has been a normal concomitant of progress and it probably will continue to be. Under a 5 February 1948 dateline, the United States Secretary of the Navy released to the press a plan to construct a carrier of 80,000 tons displacement. Part of the increase in size which such a ship would represent over her sisters is unquestionably a normal consequence of technical advances in familiar fields; the rest of it is presumably due to study of the new weapons and adaptation of the carrier type to their offensive employment and to defense against them. In the same press release, it was announced that a "hunter-killer" ship to attack fast submarines, similar to but somewhat larger than present day destroyers, was planned. Four new "fast" submarines and conversion of two older ones completed the announced program. One of the submarines is to be fitted as an oiler for her sisters. While this latter had her prototype in the German "sea cows" of the late war, she nevertheless represents a new departure in United States naval construction policy, but there is nothing in the entire program which indicates any revolutionary changes in warship characteristics. The concepts in the design of the new ships, and the conversion features of the older ones, reflect merely an orderly and carefully planned assimilation of what



Supersonic ram jet in launching rack at Inyokern, California.—U.S. Navy photo.

has been learned and what can be foreseen.

Conversion

What of new types? While there is strong possibility that at least some units of all classes of combatant vessels will be subjected to some conversion of armaments to provide for the employment of new weapons, on the one hand, and for defensive fire against them, on the other, these changes cannot properly be considered to have resulted in "new" types. Experimental firing of a German V-2 rocket from the deck of the carrier *Midway* was successfully conducted in the summer of 1947. That ship is undergoing alterations during the early part of 1948, and an important feature of the work to be done upon her in the yard is the strengthening of her flight deck. The work of converting the main batteries of the battleship *Kentucky* and the large cruiser *Hawaii* from rifled guns to guided missiles has been temporarily halted, but the Navy indicated, in a February 1948 statement, that plans for the employment of guided missiles from ships are not being discarded.

"Range Harp" used by the navy for estimating the range and bearing of incoming planes.—U.S. Navy photo.

The possible use of submarines for launching guided and rocket-type missiles has been widely and publicly discussed during the past two years. There appears to be little reason to doubt that such batteries will be installed on submarines in the future.

The employment of the submarine as a fuel tanker, mentioned previously, forecasts the probable future extension of that idea to include carrying all kinds of supplies not only for other submarines, but to service all types of surface combatant units. The saving in escort strength which such submarine-maintained communication lines would permit, makes such a practice doubly attractive and points strongly to its future appearance in naval warfare.

In the field of structural changes in existing types, in addition to those alterations mentioned previously to permit installation of missile batteries and defense armaments, it may reasonably be predicted that technical changes will appear in methods of ship construction. These will be dictated by the desirability of increasing resiliency in the ship, herself, and of incorporating such means of shielding against radioactivity, and decontamination after exposure to it, as may be developed. The whole problem of radioactivity defense in ships presents aspects which are startlingly similar to those which have long been offered by the threat of vesicant gas attack.

As more is learned of the application of atomic power to constructive and industrial uses, it is a foregone conclusion that it will be adapted in some form to ship propulsion and ship control. Just what changes in conventional vessel structure and interior arrangement will be thus necessitated cannot be foreseen as yet, but it is reasonable to assume that they will be of such general nature as to facilitate, rather than complicate, those already mentioned above and that they will be no more revolutionary in character.

With respect to ship personnel, it may be prophesied with confidence that the most

significant change to be looked for will consist of the addition to the present list of technical shipboard ratings of the necessary specialists to service and fight the new weapons and their associated equipments. For personnel protection, impermeable clothing, masks of some sort, and screens for exposed stations, as may be determined by the search for shielding against radioactivity, will undoubtedly be provided.

Tactical Changes

In the field of tactics, the dispersing of ships within the tactical framework of any fleet or force disposition, so that the effective destructive radius of atomic explosive missiles will jeopardize the least number, is an obviously necessary step. This received wide discussion at the time of the Bikini tests. The specific distances and formation patterns that such dispersal will take may be expected to vary with such factors as the lethal radius of the missiles most likely to be encountered, the defensive capacity of the force or fleet, and the relative probability of meeting other forms of attack at the same time. Otherwise, however, there appears to be no ground for expecting tomorrow's dispositions to feature radical departures from those of the past.

Another vital tactical consideration which has always been of great importance in sea warfare, but which the threat of atomic explosive radioactivity should spotlight more sharply than ever before, is the wind in the area in which a naval force or unit may be operating. The strength and direction of the wind, both on the surface and in the upper air, will have a direct bearing on the degree of exposure of units to radioactive clouds following attack and will, therefore, be a prime factor in conditioning the handling of the target formation. Finally, more widespread use of the submarine type for bombardment of coastal and inland objectives will follow logically from the installation in those ships of missile batteries.

Summary

This outline makes no pretense of being a complete catalog of the material and tactical changes in naval warfare which will probably result from the development and use of new weapons. It does, however, cover in outline form the most important of these changes which the evidence available today indicates may be looked for, and it stresses the fact that our present naval equipments and techniques are fundamentally adaptable to meet whatever threat the foreseeable future may hold.

To the question "Can today's navies survive tomorrow's attacks?", the answer is an unqualified "Yes." To the companion query "How?", the answer is "by the same means that any and all types of military forces in mankind's history have been employed to meet new developments, viz.; by adapting the new weapons and agents to our own use, and by devising effective counter weapons and passive defense measures to meet them when they are used against us."

Our troubled postwar era has emphasized the urgent need for closely coordinated efforts of the armed services in achieving a high degree of national security. The strength of these United States developed in a cooperative spirit of order and stability will serve the world as a positive instrument for international peace.

Secretary of the Navy John L. Sullivan

Guerrilla Operations in Northern Burma

Lieutenant Colonel W. R. Peers, *Infantry*
Instructor, Command and General Staff College

This article concludes the first-hand account of the operations of Detachment 101, Office of Strategic Services, with the native Kachin tribe guerrillas in Northern Burma. Lieutenant Colonel Peers was the Commanding Officer of the detachment.—The Editor.

Development of Operations

AFTER the first few operations, activities increased rapidly in tempo. By the end of 1943, six field bases had been established across Northern Burma (see Chart III). Each of them had the mission of developing small guerrilla forces to harass along the Jap supply lines, and to collect all possible information.

In the early part of 1944, about the time the Chinese Forces of the Northern Combat Area Command (NCAC) began their drive through the Hukawng Valley, General Stilwell ordered an increase in guerrilla operations. Three thousand guerrillas were to be raised and intelligence activities were to be developed further to the south. If successful, plans were to be made to raise a force of 10,000 guerrillas. For the immediate implementation of this plan, available qualified American personnel were transferred to the unit, and the necessary arms, ammunition, and other equipment were made available, as well as six aircraft for air supply from the Troop Carrier Command. Approval was also given for the movement of personnel and equipment from the United States to effect the long range plan.

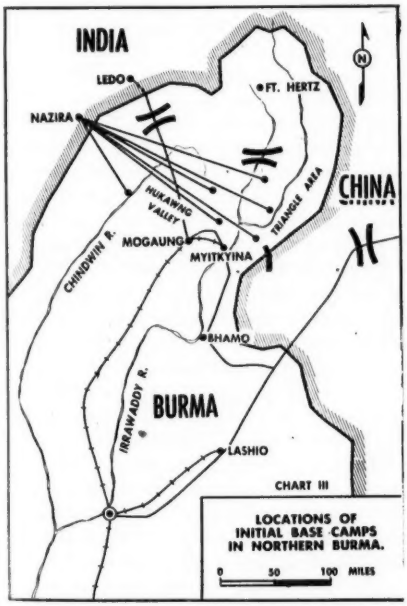
It was realized that the unit headquarters in India could no longer direct each operation individually, and that overall operations would have to be more closely coordinated with tactical operations. Control was decentralized by developing what was called area control. Four area headquarters were created in the field, each headquarters having direct control of all operations in an assigned area. By this means, the unit did not have to plan and direct the operations of individual field units, but rather developed the broad plans and directives, while the area commander coordinated activities in his area. Closer coordination was effected with military operations by moving the Unit Operations Section adjacent to Headquarters NCAC and the 10th Air Force.

Four Phases

From this point onward, operations can be divided into four phases (see Chart IV). A brief general description of the activities during each of these phases follows:

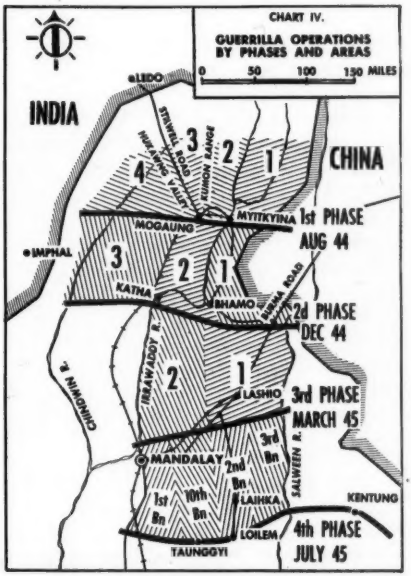
The first phase covered the area north of the line: Myitkyina—Mogaung and ended with the completion of the Myitkyina Campaign in August 1944. Area No. 1, east of the Irrawaddy River and commanded by an American Naval Commander, raised and trained a force of 1,500 guerrillas. This force moved to the

south and cut the supply route from Myitkyina to elements of the Japanese 56th Division on the China border, and isolated other Japanese garrisons by ambushing their supply columns. They located and ambushed a Jap regiment moving into Myitkyina from the south. The enemy finally diverted a battalion in an attempt to clear up this guerrilla menace, but it too was repeatedly ambushed and suffered heavy losses. By the end of the Myitkyina



Campaign this guerrilla force had killed over 400, destroyed or seized numerous dumps and installations, and had cleared the Japs from the sector east of the Irrawaddy over to the China border. The guerrillas in Area No. 2, totalling about 400 in number and commanded by a Burma Army Captain, conducted similar ambushes along the enemy supply lines to the north and along the road and railway leading into Myitkyina from the west. Area No. 3 extended westward to include the road

used as the main line of communications by the Japs in the Hukawng Valley. This area was commanded by an American Army Captain and had about 600 guerrillas. The primary tasks were those of gathering information concerning Japanese movements, strength, installations, and defenses in the Hukawng Valley, and of harassing them along their supply route. To illustrate the effectiveness of their activities, a group of fifty Kachins under an American lieutenant killed over 150 Japs



in four days of operation. Area No. 3 in conjunction with Area No. 2 assisted Merrill's Marauders in their successful march across the Kumon Range to seize the Myitkyina airfield, by furnishing 400 Kachins which were used as combat patrols and guides. They guided the Marauders along a series of old abandoned trails and onto the airfields, to the complete surprise of the Japs. This group later detached itself from the Marauders and moved south on the Irrawaddy to ambush the enemy as

they escaped from Myitkyina; they killed approximately 350. Area No. 4, under a Burma Army Major, had roughly 500 guerrillas between the railway corridor and the Chindwin River. Their main task was to detect and, if possible, stop any threat through the series of corridors running north and south and leading into the Hukawng Valley. However, their activities were restricted to a few minor incidents. Their fight was against disease, weather, and terrain. The combination of these three elements had caused the area to become almost devoid of population and to be considered one of the most dreaded areas of Burma.

The second phase was the continuation and expansion of activities farther to the south, although it should be noted that the areas had been reduced to three. It was during this phase that the guerrilla force reached its greatest strength of approximately 10,000. The forces in Area No. 1 harassed the Japanese along the roads leading into Bhamo and practically annihilated a force of 400 escaping from Myitkyina. However, their main task was raising and training guerrillas to be used by this area during the next phase. The principal activities of Area No. 2 were centered about Katha with a continuation of surprise raids and ambushes in support of the British 36th Division attacking south along the railway corridor. Area No. 3 changed from a rather quiet sector into an area of almost continuous fighting. Their mission was to fill the 200 mile gap between the forces of NCAC to the north and the British Fourteenth Army to the west. The Japs had about 5,000 troops in the area against half that number of guerrillas. The fact that the guerrillas were air supplied allowed their units to move into the enemy's rear to work on their supply lines. When the Japanese put on drives the guerrillas withdrew into the hills and continued to ambush. This sector contained many supply installations for the Jap Forces on the Imphal front and these made prime targets for surprise raids. In the railway corridor, a sergeant with a group of ten specially trained Kachin demolitionists destroyed five bridges and derailed and shot-up three trains. The activities of this team would make an interesting story.

By the time the combat troops had reached the line: Bhamo—Katha, guerrilla activities were established another 100 miles south, generally through Lashio and Mandalay, and the areas were reduced to two. The bulk of the fighting took place in Area No. 1 where the detachment reached its highest state of organizational development. The guerrillas were organized into battalions, each battalion being assigned a specific zone with a view to isolating Lashio. These operations were most successful and forced the Japs into using tanks and artillery, although these proved useless against mobile guerrilla forces which would not stand and fight. When the Chinese Forces reached Lashio, the enemy strength had been reduced to the point where the Chinese occupied it against only slight resistance. The activities in Area No. 2, northeast of Mandalay, amounted to a prolonged series of coordinated raids and ambushes.

The operations of Detachment 101 were supposed to cease when the combat troops secured the Stilwell Road by controlling the area a few miles south of Lashio. The Kachins, many of them hundreds of miles from their homes, had been told that their work would then be finished. However, about that time a critical situation developed in China and the bulk of the Chinese and American forces in Burma were flown to China, leaving the guerrillas as the only effective fighting force available to NCAC.

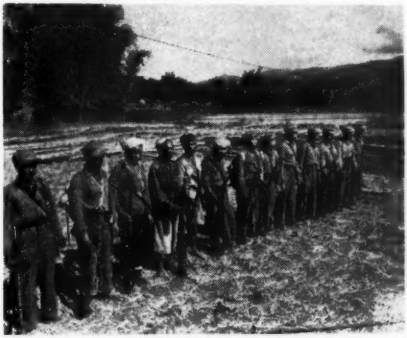
Lieutenant General Daniel I. Sultan, then Commander of India-Burma Theater, ordered the unit further to secure the Stilwell Road by seizing the Taunggyi-Kentung road and clearing the area. The Kachins were tired and had been told they

could go home, so the idea of conducting an additional operation in Shan territory was put to them on a purely voluntary basis. Fifteen hundred of them volunteered and the remainder were provided transportation to their home areas.

The 1,500 were increased to 3,000 by Karen, Ghurka, Shan, Chinese, and a few Burmese volunteers. These were formed into four battalions, one of which was fairly well seasoned having been activated and employed in the area of Lashio. This battalion spearheaded the operation by avoiding the Japs and moving southward along the ridges to reach the road in the area of Loilem where it immediately established a base and commenced general harassing operations. The other battalions employed a combination of normal infantry and guerrilla tactics. In each case, about half of the force applied frontal pressure, while the remainder of the force worked twenty to fifty miles in the enemy's rear. Within three months, these small forces were able to push a force of nearly 10,000 Japs out of an area over 100 miles in depth and to control all of the road except a small strip in the area of Taunggyi. All battalions experienced heavy fighting, but the brunt of the fighting was in the western zone. The Japs suffered heavy losses—over 1,200. The ratio of guerrilla losses to Japanese was one to four, which was the greatest percentage of guerrilla casualties suffered by the unit during any phase.

The 10th Air Force provided excellent close-in support. Although their bases were 150 to 300 miles to the rear, they always had aircraft over the area which could be directed to ground targets in a matter of minutes. When the Jap airfields in the area of Laihka were taken over, six fighter aircraft were operated from that area even though a considerable number of the enemy remained to the north. Rather than assault the enemy positions, the guerrillas would isolate them, a liaison aircraft would then pinpoint the target by dropping a smoke grenade, and

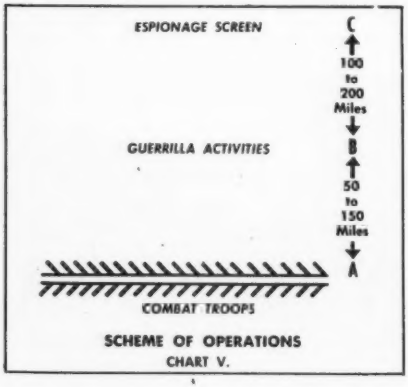
Two educated Kachin guerrillas in native dress (above) examine an aerial mosaic and map. This group of Kachin guerrillas (below) was a part of a battalion operating in the Lashio area.



These two Japanese prisoners (below), among the first captured in Burma, were infiltrated through Japanese lines and flown to India.

fighter aircraft would follow up with napalm bombs to burn them out and force them into the open.

Detachment 101 was awarded the Distinguished Unit Citation for the last phase of operations. However, it is not believed that this last phase can be accepted within the normal capabilities of guerrillas because it contained several unusual conditions. The Japs remaining in this area had been badly mauled in Northern Burma; they were tired, poorly equipped, and lacked unified command. True, they would fight to the last man when pinned down,



SCHEME OF OPERATIONS
CHART V.

and occasionally attacked, but they lacked the aggressive spirit exhibited earlier in the war. In its true light, this operation may be best classified as a mopping-up operation. Against a first class enemy, guerrillas should not be employed on infantry missions, but should adhere to their role of guerrilla operations well behind the enemy lines.

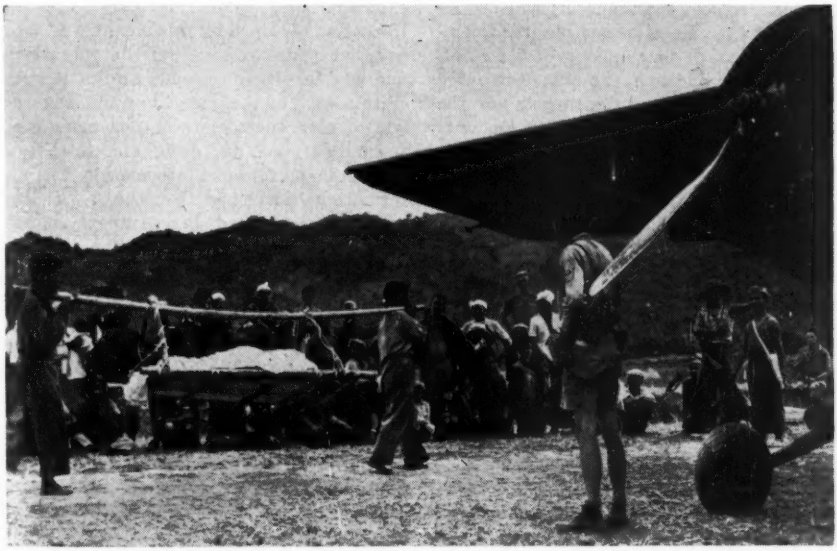
The detachment recognized that each of its activities, such as guerrilla action, espionage and sabotage, was of a specialized nature, but that it was not a separate and distinct undertaking within itself. Therefore, the unit and its operations were organized so that these activities would be mutually supporting. Each activity had its own planning and direction, but the overall coordination and direction was through a central operations section which had the additional responsibility of coordinating all activities with NCAC Headquarters, Air Forces, Theater, and parallel British commands. Coordination was accomplished with NCAC, 10th AF, armies, and in certain cases divisions, by attaching operationally qualified liaison personnel to each headquarters concerned and providing them with the necessary communications equipment.

Operating Scheme

The general operating scheme of the unit provides an excellent illustration of the mutual support of activities and of coordination with military operations (see Chart V). If we assume that the combat troops are along line A, then line B, 50 to 150 miles in rear of the enemy lines, is the general area of guerrilla activities, and line C, 100 to 120 miles beyond the guerrillas, represents the area where espionage and propaganda agents operate to determine the attitude of the people and to win over friends. As the combat troops advance, the areas of guerrilla and espionage activities likewise move forward so that they always maintain the same relative positions and continually expand their operations. The guerrillas were kept well in front of the combat troops primarily because it was there they could render the most valuable support. However, the idea was also to keep them away from the combat troops because when they saw the food and equipment provided the latter they immediately wanted the same thing. This seriously reduced their mobility and added many burdens to the air supply system. Of course, there were situations where it was advisable to provide close-in support, but these were unusual, and as a general rule it was far preferable to keep them well in front.

Of all the operations undertaken by the guerrillas, the most effective was the ambush involving surprise, shock, and fire

power. Many different types were tried, tested and improved. Some of them employed tools fashioned from jungle materials and others used modern mechanical devices. Extensive use was made of *pungyis*, which were smoke hardened bamboo stakes one to two feet in length. In preparing an ambush, *pungyis* were planted and camouflaged along-side the trail, and automatic weapons were placed to enfilade it. When the enemy column was in the ambush area, the automatic weapons opened up simultaneously, taking a heavy toll and causing the enemy to dive in the undergrowth where they became impaled on the hidden *pungyis* and suffered even heavier casualties. The *pungyis*' bayonet-like action was feared by the Japs and often caused them to detour several miles away from suspected ambush areas. In more open terrain, grenade ambushes were particularly effective. These were accomplished by burying and camouflaging a string of hand grenades, about twenty-five per 100 yards, alongside the trail and detonating them as a unit by electrical means. During the resulting confusion, men with automatic weapons thoroughly shot-up the area. In one such ambush, 105 Japs and eleven animals were killed with no loss to the guerrillas.



A system of air evacuation of casualties was worked out for the guerrilla operations in Northern Burma. Here a wounded Kachin Ranger is being carried to a L-1 liaison plane to be flown to a hospital in Myitkyina.—Signal Corps photo.

During the course of its operations the detachment, by actual count, killed well over 5,000 Japs, captured and flew out seventy-five prisoners, assisted in rescuing over 300 allied airmen, derailed nine trains, blew fifty-six bridges, and destroyed 252 vehicles as well as numerous dumps and other installations. On the intelligence side, no records were maintained to distin-

guish between the information gathered by means of espionage and that collected by the guerrillas. However, in final evaluation it was estimated that the unit gathered between 65 per cent and 85 per cent of the tactical information used by NCAC Headquarters (which was comparable to an army headquarters). Pertinent information was also furnished to the subordinate units of NCAC, but normally the amount of useful combat intelligence furnished by the guerrilla unit decreased as its size increased, until at battalion level it was almost zero. In addition, the unit designated a large percentage of the targets for the 10th AF, and collected varying amounts of political, economic, and sociological information for higher headquarters. Another factor which is rather difficult to evaluate was the worth of these operations in maintaining the loyalty of the Kachins and in weaning other groups away from the Japs and over to the side of the Allies. However, one must assume such value to have been great.

Principles of Operation

In analyzing the guerrilla operations of Detachment 101, it is obvious that many lessons have been learned. The techniques employed by the detachment were designed according to the situation, including the peoples, terrain, weather, and the military situation. It should be remembered that the specialized techniques used in Northern Burma are not necessarily applicable to other areas, continental Europe, for example. However, the general principles of guerrilla operations are applicable to practically all areas. The following are a few of the more salient principles along with a brief discussion as to how they were handled in Northern Burma:

1. *Intelligence*—Before guerrilla operations are initiated, there should be a thorough and efficient intelligence system developed in the proposed area of operations. After guerrilla forces have been formed they should be fully exploited as a source of information.

The old principle that plans had to be based upon facts and not fancy was reaffirmed during the initial phase of operations. In realization of this principle an espionage system with both breadth and depth was established throughout Northern Burma. As guerrilla operations developed, this intelligence screen was likewise expanded and pushed forward. The information obtained by this means was used as a basis for further guerrilla operations and was furnished to combat units as well. Within each of the guerrilla units, regardless of size, there were one or more men specially trained and designated to collect, evaluate, and forward information. The information developed by the guerrillas generally concerned Jap strength, movements, identifications, dispositions, installations, equipment and the like—all valuable intelligence.

2. *Tactics*—Guerrillas should not get tied down in prolonged engagements as they are not suited to that type of warfare. They are most valuable on missions of a hit-and-run nature, always retaining the elements of surprise and mobility.

The Kachins were masters in the art of guerrilla warfare, having conducted that type of warfare for many generations. By combining their knowledge of the jungles and their love of the hunt with modern weapons and equipment, Kachin guerrilla action developed into mass slaughter. Every operation was planned to effect maximum surprise, to have a short period of concentrated fire, and then for the men to vanish before the enemy could react. By these means maximum casualties were inflicted on the Japs with a minimum of losses; the final ratio of enemy to guerrilla casualties was greater than ten to one. All types of small arms weapons were used, but the most effective was the 9-mm Marlin sub-machine gun originally designed for the Dutch resistance forces. Its main advantages were its high rate

of fire, 800-900 rounds per minute, accuracy, reversible 100-round clips, light weight ammunition and simplicity of functioning.

3. *Plans and Direction*—All plans and orders should be prepared so as to lend maximum support to military operations.

The planning within the unit has already been covered. Matters of direction and control had to be watched continually to see that there was no misinterpretation. Violations of this principle were held to a minimum by taking immediate corrective action. Control within the unit was accomplished by having a thorough and efficient communication system, and through the use of liaison aircraft. The L-1 type liaison aircraft best suited the requirements of the unit because of its long range, short take-off and landing space, and its comparatively heavy payload. The L-4 and L-5 were also used quite successfully in later operations on the relatively high plateau area of East Central Burma.

4. *Supply*—Procedures should be developed so that the guerrilla units have supplies when and where required.

Normally the guerrillas lived off the land by local purchase. However, in some sectors the food stocks had been depleted by the war and the unit had to provide its own supplies. Nearly all supply was by air. When all guerrilla units were active, twelve drop aircraft were employed daily for supply. Standard drop loads were prepared and dropped on schedule at prearranged drop sites. If a unit got in trouble, it could be given an emergency drop in a matter of hours. Special emergency items were packed and set aside so that it was simply a matter of loading them on the aircraft and dropping them to the field unit. The C-47 was the normal drop-aircraft, although some B-25s were used for emergency drops.

5. *Personnel*—There should be careful selection of personnel used on this type of activity: preferably they should be volunteers. All should be thoroughly trained and conditioned so that high *esprit de corps* may be achieved and efficient operations maintained.

The American personnel in the unit were given a three-months' training course in the United States. After arrival in Burma they were given two weeks additional training on terrain and under conditions similar to those which existed in the field. Every man, officer or enlisted, was expected to be able to operate independently. The educational qualifications for enlisted personnel were nearly as high as for officers. Several junior commissioned officers of the unit were promoted from the ranks.

The Americans and the Kachins had much in common—loyalty, honesty, dependability, and equally as important, a sense of humor. They sincerely admired and respected each other's qualities. Under these circumstances, high *esprit de corps* was a natural thing. As an example, the unit parachuted over 400 Americans and natives into operations without ever giving more than basic ground training, and never had a refusal. Of course, the Kachins loved to jump because of the thrill, as well as the added prestige they gained in their home village.

Two Kachin guerrillas transporting salt and rice in the Lashio area.—Signal Corps photo.

Fatigue and disease were the main causes of personnel failure. Minor diseases were treated by medical corpsmen in the field while the more serious cases were evacuated by liaison aircraft to the unit base hospital. Jungle fatigue among the Kachins was negligible, whereas, among the Americans, it was variable. The jungle endurance of an individual ranged between six months and two years. If at all possible, at the first sign of fatigue, a man was returned from the field and given a rest, a physical check-up, and a new assignment.

Conclusion

In conclusion, it is believed that guerrilla operations are well worthwhile in that they can provide valuable assistance toward the accomplishment of military objectives, both operationally and from an intelligence point of view. Although there are many similarities between regular military operations and guerrilla activities, there are likewise many differences. The outstanding difference, and the one which is not always understood, is that our cause is not necessarily the guerrilla cause. Other differences are that guerrillas are not subject to the court martial type of discipline, that their service is voluntary with the individual and that they can leave whenever they desire. Therefore, special skill in management and direction is required. Well thought out plans, just consideration of rights and ideals, and above all, fair and honest treatment, will generally correct any differences which may arise between guerrillas and regular forces.

The past war has shown us that guerrilla activities do have a place in modern combat. In every situation where guerrillas were well organized and properly supplied and directed, they achieved excellent results. In addition to their tactical effect, guerrillas also become part of the war of nerves. The enemy must guard his supply lines and his installations, and he must adopt special security measures for his troops, as well as combatting the psychological effect of guerrillas. He is not safe even in his own rear areas, as long as guerrillas are present.

Recognizing the value of guerrilla operations, we should be fully prepared to exploit them in the event of a future war. Conversely, we must not forget that any of our possible future enemies will likewise be fully aware of the potentialities of such operations, and we therefore must be prepared to defend ourselves against them.

Guerrilla warfare is undertaken with a wide divergence of means and with great initiative by the leader of each group, without trying to reach a decision by eliminating the principal nuclei of every resistance or fighting a battle, which they must always avoid. It is a form of warfare which develops over the whole country, but especially in mountainous, rough, inaccessible terrain covered with forestry and vegetation. Its objectives are limited in view of the importance of the nuclei that undertake this kind of warfare.

Captain Bruno Galindo Trejo in "Revista del Ejército," Mexico

Population as a Military Potential

Colonel E. C. Bergquist, *Infantry*
Instructor, Command and General Staff College

MANPOWER is the most important factor in the economic and military mobilization of any nation. Materials and machines are useless if the nation lacks the human beings to put them to effective use. The manpower pool of the nation must expand the munition industries; maintain farming, mining, manufacturing, and transportation; support the civilian economy on at least a minimum standard; and, in addition, it must man the armed forces. Man, in the final analysis, is the fundamental instrument of war.

The population of a country produces the wealth of that country for its own benefit. Changes, therefore, in the size and efficiency of the population are factors in the social and economic growth of the country. As a result, the environment, ability, rate of growth or decline, and the effects of numerical changes in the population or the standard of living, influence the economics of the country.

In time of war, manpower, the basic resource of a nation, is obtained from its population. The value of the manpower factor in the war potential of a nation is based upon size, age and sex distribution, and growth of its population; upon the working and fighting ages, and the employability and productivity of its labor force; and the type of economy, industrial or agricultural.

Until recent times little was known about the population of the world. Estimates concerning population have been projected back about 300 years, but such estimates are inadequate. They give a broad approximate picture of the size of the population during a given period, but being estimates, cannot furnish the details needed for a proper demographic study. Even today the population of the world is not exactly known, since there are large sections of the world in which no census has been taken.

It is estimated that the population of the world increased from 1.1 billions to 2.2 billions in the period between 1850 and 1940. The growth of the population, however, was uneven in different parts of the world. For example, the population of Europe doubled (from 266 millions to 550 millions), but that of North and South America was quadrupled, increasing from about 61 million to about 286 million. The present rate of world population increase is approximately 20 million per year[1].

Based upon growth, the countries of the world at present may be grouped into three categories. The first, which includes almost all of western Europe and the countries settled by their emigrants, has

[1] Guy I. Burch and Elmer Pendall, *Population Roads to Peace or War*, p. 19.

Since in any future emergency total mobilization of population may be required, realistic plans for its control, allocation and utilization must be formulated in advance to prevent the loss of irreplaceable time

declining birth and death rates. The birth rate shows the most rapid decline, with the result that the rate of natural increase is falling off. The second category includes Italy, Spain and the Slavic peoples of central Europe, and is similarly characterized by declining birth and death rates. The death rate, however, is falling more rapidly, resulting in a rate of natural increase which will probably be maintained at its present level for some time, or may even increase. The third category, consisting of Russia and most of the peoples of Asia and South America, is characterized by little control of birth and death rates.

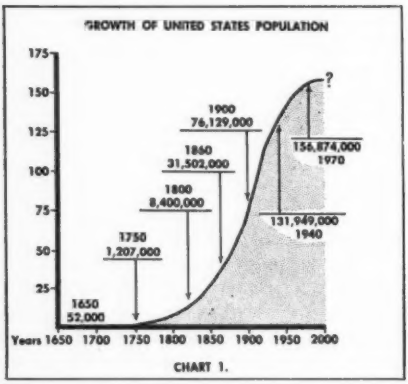


CHART 1.

Large and rapid growth in these areas is in prospect.

No planned population policy has ever been established by the United States. Until recent years the need for such a policy was not apparent. Now the same situation with respect to population growth exists here as in western Europe. In spite of the lack of an enunciated policy, however, this country has followed policies which have affected the growth of its population. The policy of the government in making land available in family-sized farms encouraged immigration from the early settlement days until the end of the Nineteenth Century. The unrestricted immigration policy which was followed until World War I aided population growth.

In studying population trends and population policy, one cannot fail to be impressed with the fact that except for immigration regulations, population growth in the United States has been left to the ordinary social forces. This nation is now faced with a declining birth rate which will fail to provide for national growth (see Chart 1). If the birth rate continues to fall as expected, the nation can grow, or perhaps retain a stationary population, only by opening the gates to immigration, and by making further long strides in reducing the death rate.

Most authorities agree that the United States should develop national population policies which will help to avoid many of the mistakes of European nations. The problem of manpower in World War II made all nations more conscious of the future importance of population in world affairs.

1. U.S. Manpower Pool

The most prevalent belief, among persons who do not give careful study to manpower problems, is that our population is growing by leaps and bounds. They point to the great number of offspring presently arriving daily in every part of the United States.

The real facts are, however, that while the total population of the United States is growing slowly, the birth rate is declining and the population is aging. The present and projected future population figures for the United States are shown in Table 1. These figures were obtained by using past census figures to include 1940. In future population figures, immigration has not been considered, because until such time as a national policy with respect to the admission of aliens has been determined, no estimate can be made of the future volume of immigration.

Considering the stratification of the

Present and Future Population of the United States*.
All figures expressed in thousands[1].

Age Group	1947 Numbers	1947 Pct of Total	1950 Numbers	1950 Pct of Total	1960 Numbers	1960 Pct of Total	1970* Numbers	1970* Pct of Total
0-4	12,684	9.0	12,502	8.7	11,294	7.6	11,492	7.3
5-9	11,842	8.4	12,686	8.8	11,633	7.8	11,258	7.2
10-14	10,893	7.7	11,252	7.8	12,374	8.3	11,195	7.1
15-19	11,627	8.3	10,594	7.3	12,602	7.8	11,569	7.3
20-24	11,875	8.4	11,533	8.0	11,120	7.4	12,255	7.8
25-29	11,628	8.4	12,005	8.3	10,423	7.0	12,434	7.9
30-34	10,027	7.2	11,232	7.8	11,306	7.5	10,935	7.0
35-39	10,301	7.4	10,712	7.4	11,714	7.7	10,205	6.5
40-44	9,499	6.8	9,807	6.9	10,871	7.2	10,993	7.0
45-49	8,680	6.3	8,996	6.3	10,243	6.8	11,276	7.2
50-54	7,920	5.7	8,062	5.7	9,157	6.1	10,263	6.6
55-59	6,926	5.0	7,258	5.0	8,049	5.3	9,312	5.9
60-64	5,521	4.0	5,988	4.2	6,755	4.5	7,814	5.0
65-69	4,169	3.0	4,419	3.1	5,550	3.7	6,232	4.0
70-74	3,034	2.2	3,119	2.2	3,979	2.6	4,536	2.9
75-79	1,851	1.3	2,013	1.4	2,344	1.5	2,961	1.9
80-84	879	.6	959	.7	1,168	.8	1,492	1.0
85-89	317	.3	330	.2	448	.3	518	.3
90-94	72	.1	78	.1	99	.1	120	.1
95-	8		8		10		14	
Total	139,753	100.0	143,553	100.0	151,139	100.0	156,874	100.0

* Computations based on medium mortality and fertility, without immigration, and considering war casualties of 259,000 dead.

[1] Warren S. Thompson and P. K. Whelpton, *Estimates of Future Population of the United States, 1940-2000*, p. 23.

Table 1.

total population by age groups of five year periods, from zero to one hundred years of age, the largest single group at the present time is contained in the 0-4 years group, in which is found 9 per cent of our total population. Also at present, 50 per cent of our population is less than 29 years old. In 1950, the largest single group will be the 5-9 years group containing 8.8 per cent of the population, and the median age will be 30 years. Continuing to 1960, the largest single group will be that of 10-14 years, containing 8.3 per cent of the total population, with a median age of 31.8 years. In 1970, the largest single group will be that of 25-29 years of age, containing 7.9 per cent of the population, with a median age of 32 years[1].

In 1947, in the total population of the United States, there was a deficit of males to females of 247,000, or a ratio of males to females of 99.6 to 100. This ratio is expected to drop to 99.1 in 1950, and 98.9 in 1960. This will be the low point, for in 1970, the ratio is expected to increase to 99.0, with a deficit of 920,000 males. The lowering ratio is explained by war casualties and the aging of the population. The eventual increase is the assumed result of decreased infant mortality which will increase the proportion of males in the younger age groups.

The geographical distribution of the total population of the United States in 1947, based on the 1940 census, adjusted for growth of the population and for wartime effects of migration, is computed as follows:

North	80,204,000
South	41,666,000
West	17,883,000

The North, as used here, includes the New England states, New York, Pennsylvania, those states north of the Ohio River, and west to include North and South Dakota, Nebraska and Kansas. The West includes the western section of the United States, east to include Montana,

[1] Warren S. Thompson and P. K. Whelpton, *Estimates of Future Population of the United States, 1940-2000.*

Wyoming, Colorado and New Mexico. The South includes the remainder of the United States. The South at present has a rate of population increase more than double that of the North. This development is associated with the increasing industrialization and urbanization of the South. The West has a rate of population increase even greater than the South, due principally to the fact that the West represents the most recently developed section of the country. The indications for the future are: that the population growth in the North will be much slower than in the other regions; that population stability will be achieved first in the North; and that population differences in all three areas will gradually decrease.

It was estimated in 1947 that 80,090,000 people, constituting 57.2 per cent of the total population, lived in urban communities. For this discussion, an urban community is considered as a city or other incorporated place with 2,500 or more inhabitants. Since 1790, the urban population has grown steadily and quite uniformly from 5 per cent of the population at that time to the present figure. During World War II the rate of change was greatly accelerated, which appears to represent an accentuation of former trends, rather than a sharp break with the past. This resulted in migratory population growth in the industrial cities of the West Coast, the Great Lakes, the Gulf Coast and the South Atlantic States, with a corresponding decrease of migratory population in the West North Central States and the Middle Atlantic States. Although the economic condition of the country in the future will influence migratory trends, it is expected that migration will continue to flow to the urban areas, but at a gradually decreasing rate.

Although immigration has had a tremendous influence on the history of population growth and composition in the United States, under present laws and practices, immigration can no longer be regarded as a significant source of population increase. At the present time, the percentage of foreign born population in the United States is approximately 7.5 per cent, the median age of this segment of the population being 51 years. The high median age indicates that this percentage will drop rapidly unless the quotas for immigrants are greatly increased by legislative action.

2. Factors Which Affect Quality of a Manpower Pool

a. Relationship to Demographic Aspects.—The number of people in the United States and in many foreign countries is a statistical fact. Demographic studies of population trends are able to predict fairly accurately the future growth or decline in the size of the population of the principal nations of the world. Such forecasts are not wholly gratifying in the quantitative sense as far as the United States is concerned. It is important, therefore, to understand those factors which affect the quality of the manpower pool. These factors are as many and complex as human nature itself. Omitting the obvious limitations of age and sex, the factors of skill, intelligence, educational level, and health are of primary importance to both the armed forces and the industrial potential of this nation.

b. Employment.—Full employment is a factor of over-all general economic stabilization. Best professional usage regards employment as "full" when unemployment is "empty" except for a minimum of transitional or mobile unemployed. It is generally accepted that under full employment approximately two million workers will be unemployed. Full employment at the present period means that the productive capacity of this country will be adequate to furnish average levels of living far beyond prewar expectations. For instance, per capita gross national prod-

uct of full employment in 1950 will be not merely greater than in 1929 but it will be more than 50 per cent greater. In 1950, provided the 1941 gross national product is exceeded by 35 per cent, full time employment will exist for all who wish to work[1].

High production is obtained and maintained to a great extent by technological advancement. Technological and industrial progress increases output per man hour. Technological progress frequently is far in advance of economic progress. Full employment and utilization of all economic resources, including labor, in the production of useful goods and services does not occur when economic organization fails to keep abreast of science and technology.

Future occupational trends indicate that the slowing down of population growth may make occupational shifts more difficult in the future. In a growing population, shifts in occupational composition can be brought about solely through shifts in the vocations of the growing generation. In a constant population, shifts may involve displacement of mature adults from their habitual occupations and their retraining and reabsorption in new occupations. With a continuing need of readjustment in occupations and greater difficulties in bringing them about, an increasingly powerful and flexible economic system capable of bringing about the occupational shifts will be needed to keep occupational distribution in adjustment with technological advances and consumer demands without chronic unemployment. Technological advances will continue to increase, reducing further the requirements of labor in agriculture and increasing the labor requirements in nonagriculture trades and industries.

c. Education and Training.—In any study of populations, the size and general effectiveness of the manpower pool are influenced by the educational qualifications of its members. Illiteracy in a community limits the number of people who can be trained in skills required for industrial and military usefulness. The higher the literacy rate of a community, the higher the percentage of persons available for skilled occupation. The record of Russia, however, in which a nation of 160 million people raised its literacy from 31 per cent to 90 per cent in fifteen years indicates the danger of forecasting the effects of literacy on the industrial and military potential of any country.

"Know how," the intellectual product of an industrialized nation, greatly increases the capacity of the labor pool but in the present day world the techniques of mass production are being universalized. That Asiatic peoples will indefinitely limp behind those of European stock in fields of applied science and industrial skills is no longer a safe assumption. One of the results of World War II may prove to have been that it spread greatly this process of universalizing western technology. Consequently, although the industralized western European countries and the United States now hold the advantage of having labor pools of higher gradings in industrial skills, such advantage may not continue twenty years hence.

The world-wide tendency is toward industrialization, and thus toward an equalization of industrial skills. This equalization first will take place in such industries as mining, steel, textiles, etc., in the countries now undergoing industrialization. The older industrialized western countries will have a time advantage in the development of new industries, and in consequence an advantage in the higher technological skills and professions.

Education is indicative of a complex of social circumstances—delay in mar-

[1] Nora B. Kirkpatrick and Everett E. Hagen, *The National Output of Full Employment, 1950*, "The American Economic Review," May 1946, Vol. 36, pp. 40-12.

riage, increased standard of living—which tends to increase the conflict between the individual's desire for offspring and his desire for worldly goods and social status, and awareness of numerous social pressures, most of which operate against excessive fertility.

The general trend in this country indicates a marked decline in the employment of teen-age children and a correspondingly increased expansion of child education. In World War I, 9 per cent of white draftees were high school graduates. In World War II, 40 per cent were high school graduates. In this country educational opportunities at the secondary and college level are extended to young people far more liberally than in any of the other leading nations of the world.

d. Health.—Human ailments, whether they be illness, mental disease or injury, represent a serious drain upon total manpower resources. They affect the total manpower pool of a country in three ways: by causing a proportion of the population to be permanently unproductive; by temporarily disabling a portion of the population at any given time; and by negating a portion of the total productive capacity due to the dependency of these two unfit groups. The effect of a wide-spread epidemic in a national economy geared to use its total manpower would be catastrophic. The example of the influenza epidemic of 1918-19 illustrates this point. Serious epidemics during World War II were prevented by involved measures, the extent of which were unpublicized and generally unknown. This problem assumes a new seriousness with any likelihood of an enemy attempting to generate the wholesale spread of disease as an offensive measure in time of war.

The extent of illness or injury in a population is not measurable to the degree possible with other demographic factors. Such statistics are not based upon data as reliable as general census data. Reference works do not indicate positively the trends of sickness rates. It can, however, be deduced that such rates have declined along with death rates.

The startling decreases in death rates and increases in longevity in the United States since 1900 have been the result of diverse and important advances. The rise in the standard of living has been an important underlying cause of this improvement. This includes many factors of which the outstanding ones are improved housing, more abundant and diversified foods, advances in health education and social service programs, and better working conditions. The other prime cause has been the advances in the medical sciences and public health administration. Sanitation, preventive medicine, quarantine and isolation, and industrial medicine have each made important contributions. Others are the prevention and control of infectious diseases, improvements in infant and maternal care, better surgical techniques, and the improving control of insect-borne diseases, deficiency diseases and tuberculosis.

Hospitals and health facilities play an important role in the well-being of the nation. In general such facilities are increased more rapidly after a time of national stress. Congress passed in 1946 the Hospital Survey and Construction Act and the National Mental Health Act. Legislation to establish a national medical service under federal control was considered.

The proportion of the draft age manpower rejected for military service was surprisingly great during both World Wars. In World War II, an increased emphasis was placed upon the factor of intelligence. In a future total mobilization of manpower, there must be a close correlation between the average manpower characteristics, the level of qualification necessary for every component of the total effort, and total quantity of manpower available.

e. The Trends and Effects of Age Groups.—At any given moment of emergency, a significant factor in the manpower potential is the age stratification of the population. The population of this country is aging. The median population age in the United States increased from 16.7 years in 1820 to 29.0 years in 1940. The percentage of persons 65 and over increased from 2.5 per cent of the total population in 1840 to 6.8 per cent in 1940 (Chart 2). The shifts in the balance of military power which may result from the trends in age distribution for various countries emphasizes those conditions which allow for better utilization of the older age groups. Principal measures for the effective use of the older workers are the maintenance of full employment, emphasis on retraining facilities and placement service, and exploiting the value of increased experience and dependability.

f. Nature and Effect of Sex Distribution.—The ratio of females to males varies in countries throughout the world and also within each age group within the various countries. The unbalance of sexes intensifies the conflict of the role of woman in the industrial economy and her natural function of child bearing and rearing. In this country the trend is toward an even balance of sexes.

Our greatest potential reserve of additional manpower consists of the 37 million women not now employed. Most of the potential comes from the 13 to 14 million "non-farm" women homemakers between the ages of 18 and 45, and from another 10 million over 45. During the war about 6 million women entered the labor force in this country.

g. Miscellaneous Factors.—Class distinctions, political patterns, moral trends, rates of crime, and religion all exert a qualitative influence upon total manpower. Little can be objectively stated about the manner in which these factors apply and even less can be said about the trends of such patterns in the future. These elements, nevertheless, must not be overlooked in respect to their influence upon the problem of total manpower mobilization.

3. Future Trends

No one can say what the future will bring. However, a study of past population trends leads one to speculate on how the population curves will project beyond the present time.

Professor Frank W. Notestien, Director of the Office of Population Research at Princeton University, has made several interesting projections, some of which are included below. He states: "Under the assumption that future vital rates will represent orderly extensions of past trends, and without allowances for war losses or migration, Figure 1 shows a reasonable projection of the future population for selected areas. Even on these favorable assumptions, Northwestern and Central Europe as a whole face a declining population within a few years. Because of its war losses the region may have already passed its maximum.

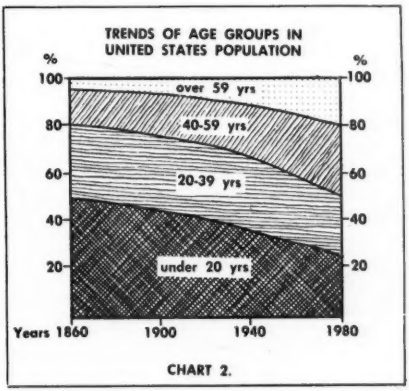


CHART 2.

"No one can foretell the actual course of population growth in Asia. It will be primarily dictated by the death rate. We must expect spurts of growth to be checked by periodic catastrophes. But the

trend shown in Figure 2 may prove conservative. It would be unwise to count on Asia as having less population a century from now than the whole world has today.

"Mounting population in the world's industrially undeveloped areas of dense settlement is not likely to bring their peoples either prosperity or political power in the near future. It is more likely to bring them poverty and weakness. In a world of spreading and expanding technical knowledge, however, it is not reasonable to assume that the regions will never solve their problems of population pressure. The solution should be expected, but not in a matter of decades, and not without intense periods of stress probably accompanied by revolution.... Asia in the next decades presents enormous human problems, and a temptation for strong powers to fish in troubled waters. In the near future it is not likely to become a new center of world power.

"The Soviet Union is somewhat less than a generation behind Western Europe in population development. Both the birth rate and the death rate are very high, but both have been falling for some time. As nearly as can be estimated on the basis of fragmentary statistical evidence, the balance of births and deaths in 1926 was one that would yield increases of over 60 per cent per generation. In the troubled years of the early thirties, the vital balance must have been sharply cut by the hasty collectivization of agriculture, rapid industrialization, and government controls. There is reason to think that with the more prosperous conditions following 1936 and the reversal of the control of births policy the rates of reproduction rose again. Apparently by 1938-1939 both birth and death rates were lower than in 1926, but the vital balance had de-

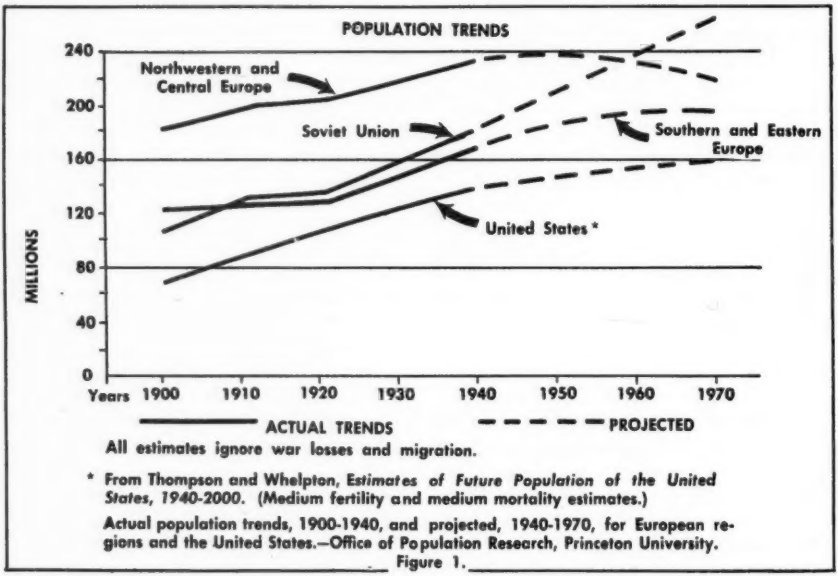
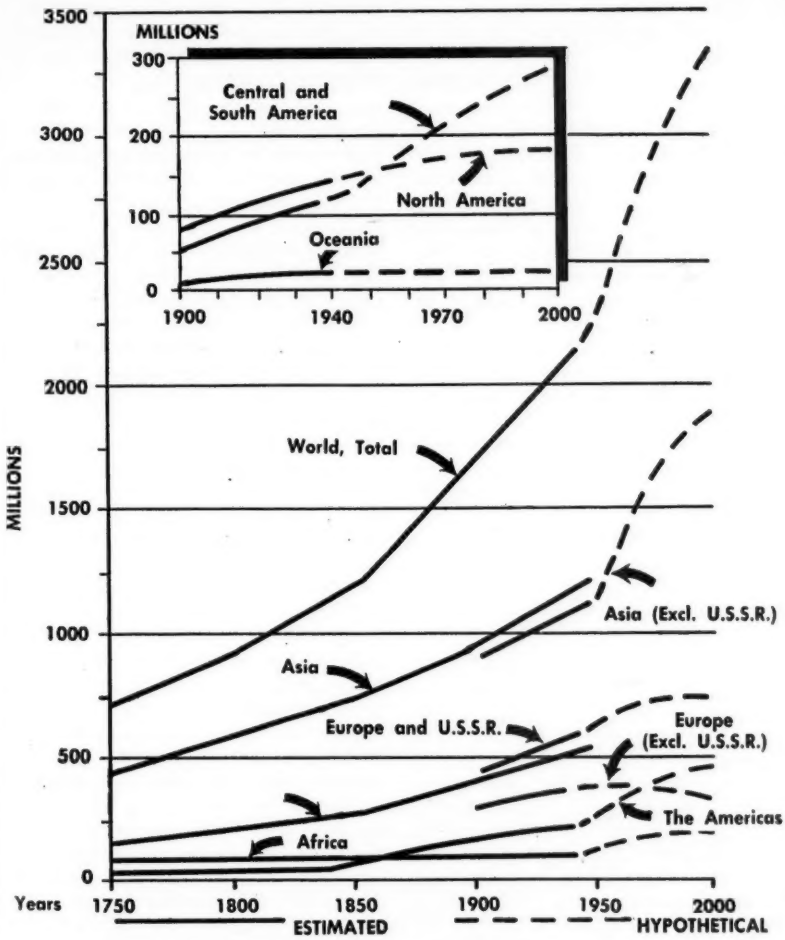

POPULATION TRENDS
240
200
160
120
80
40
0
MILLIONS
Northwestern and Central Europe
Soviet Union
Southern and Eastern Europe
United States *
Years 1900 1910 1920 1930 1940 1950 1960 1970
ACTUAL TRENDS
PROJECTED
All estimates ignore war losses and migration.
* From Thompson and Whelpton, Estimates of Future Population of the United States, 1940-2000. (Medium fertility and medium mortality estimates.)
Actual population trends, 1900-1940, and projected, 1940-1970, for European regions and the United States.—Office of Population Research, Princeton University.

Figure 1.



Estimated and hypothetical populations of major sections of the world, 1750-2000 (values for 1750-1900 from Carr-Saunders, *World Population*, p. 42). From Notestein, "Population—The Long View," p. 55, in *Food for the World*, edited by Theodore W. Schultz, University of Chicago Press, 1945, Office of Population, Research, Princeton University.

Figure 2.

clined rather little. It still presaged rapid growth."

The actual course of future population growth in the Soviet Union will depend on many factors that cannot be foreseen. The basic growth capacity can be illustrated by projecting the future population on assumptions. Professor Notestein and his colleagues at Princeton University have constructed such projections on assumptions that disregard war losses, migration, and boundary changes, and that imply rapid declines in both fertility and mortality rates. On these arbitrary assumptions the population moves from about 174 million in 1940 to 251 million in 1970. But the war losses must have been enormous. Probably no one either inside or outside of the Soviet Union knows precisely how heavy they have been. If 20 million is taken as a reasonably high hypothetical figure for military and excess civilian deaths and a substantial birth deficit for the war years, by 1950 the population of the Soviet Union within the old boundaries should be larger than it was in 1940, and should rise to something like 222 million by 1970.

The Soviet Union has also extended its boundaries in Europe to include a total number of people that should roughly balance the war losses. Current news reports give 193 million as the present population within the new boundaries. Probably no one knows the number to the last few millions, but the figure quoted agrees both with the present population and with the population of 1939, the year of the last Russian census. A 1970 population of from 240 to 250 million is an estimate for the Soviet Union within its present boundaries. This population should also be strong in the young productive and military ages. By 1970 the Soviet Union may well have as many men between the ages of 15 and 35 as the seven next biggest countries of Europe together[1].

Russia has long had a huge population. It has not long had the skills to make that population effective in terms of health, wealth or political power. The same forces of modernization that account for the wave of population growth are also bringing her people the necessary health and technical skill to exploit her extensive resources. It is the combination of large undeveloped resources, rising health and technical skill, and a young and growing population that probably will bring Russia to new levels of prosperity in a position of tremendous power.

Even though our population growth seems to be reaching a leveling off point and a possible decline, we must realize that our strength has never rested primarily on numbers. We too have ample resources, technical skills, and an adaptability and educational level far greater than other nations of the world who appear now to be expanding on a wave of technological civilization and industrialization.

Population trends and manpower have undoubtedly influenced the course of history. A future emergency will probably require the total mobilization of the population of the country. Realistic plans, therefore, for its control, allocation and utilization must be made before the emergency arises, if the loss of irreplaceable time is to be prevented. An understanding of the factors affecting quantity and quality of the manpower pool is essential to the understanding of total mobilization and manpower potential.

[1] Frank W. Notestein, *The Facts of Life*, "The Atlantic Monthly," June 1946, p. 75.

The Relationship between the Army and the Merchant Marine

Brigadier General Paul F. Yount, *United States Army*
Assistant Chief of Transportation (Operations)

FEW realize the importance of the Merchant Marine to the Army. Starting with the war with Mexico a century ago, the Army has placed ever increasing dependence upon merchant shipping for the support of overseas operations.

This country has been fortunate in that during the past century, with the exception of the War Between the States, all major conflicts in which we have been involved have been fought on foreign soil. This has saved the nation from devastation and loss of life among the civil population. However, it has necessitated the assemblage of increasingly large numbers of merchant vessels to support the armed forces.

Unfortunately, in such emergencies, merchant ships have not been in being; experienced crewmen have not been available, with the result that construction and training programs have been required when both were subject to the conflicting demands for materials and manpower and subject to high costs.

In World War I, our military operations were almost entirely restricted to Western Europe, and our Allies were able to provide great quantities of matériel and supplies, yet the Army had enormous shipping requirements incident to the movement across the North Atlantic of about 2,000,000 men and 9,000,000 tons of cargo for their partial supply.

Global Aspect of World War II

However, in World War II, we had quite a different picture resulting from what was truly a global war. The Transportation Corps, acting for the War Department and therefore shipping for both the Army and the Air Force, moved between Pearl Harbor and VJ-day 7,300,000 men and women and 127,000,000 measurement tons of matériel and supplies to overseas destinations. These foreign ports were from 500 to 13,000 miles from the ports of origin, with the average being well above that of the North Atlantic crossings of World War I. This necessitated a staggering amount of shipping.

Actually, at the peak of the war, the Army had allocated to it for operation or for use 1,706 passenger and dry cargo vessels which totalled about 16,000,000 deadweight tons or roughly twice the total of the entire pre-war American merchant fleet in similar classes. In that connection, I would like to emphasize that no tanker tonnages and no bulk petroleum requirements are included since they were not an Army responsibility. However, as is well known, those figures, too, are truly astronomical due to the highly mechanized nature of the past war.

Geographically the United States is ideally situated. We do not have to maintain a Maginot Line to protect our immediate borders from our neighbors. Excepting the possibility of a polar air approach, any attack on our country will necessarily come from a foe who would be separated from us by the ocean. In

any case, if it should become necessary for us to defend ourselves, we must be prepared to operate with large forces from bases outside the continental United States; to quickly reinforce existing garrisons; to build up striking forces at our outlying bases; and, finally, to move such forces offensively and to support them. This requires great numbers of ships.

Transportation Needs Will Increase

The possible use of air transport as an alternate may well be raised in view of our present technological advancement.

The Transportation Corps moved 7,300,000 men and women to overseas destinations in World War II.

In World War II air transport was a tremendously valuable factor in waging war. In a future conflict, it will undoubtedly be many times as important. However, in every modern war, transportation has been in short supply and there is no reason to presume that that fundamental fact will be changed.

The effect of introducing new forms of transport has not been one of reducing the demand on older forms, but rather that of stepping up the productive capacity of the older forms and augmenting them with the newer ones so as to greatly increase the total transport availability and, hence, increase the striking power in terms of both men and material and to increase flexibility of the field forces. This concept is certainly borne out by consideration of the motor truck versus rail requirements in the two World Wars. The motor truck first entered the Army's field transport system in 1916. It played a tremendous role in 1917-1918, but it played an infinitely greater one in 1941-1945. The 6 x 6 truck and the jeep are frequently named as our secret weapons along with the C-47 transport of the Air Force.

Both Ships and Planes Needed

The same increase, however, existed in our rail operations—the Military Railway Service of the Transportation Corps carried many times more the burden it carried in World War I. Therefore, in our thinking and planning, we must place great importance on air for the future; but in no way must we diminish our estimates of ship requirements—in fact we must increase them.

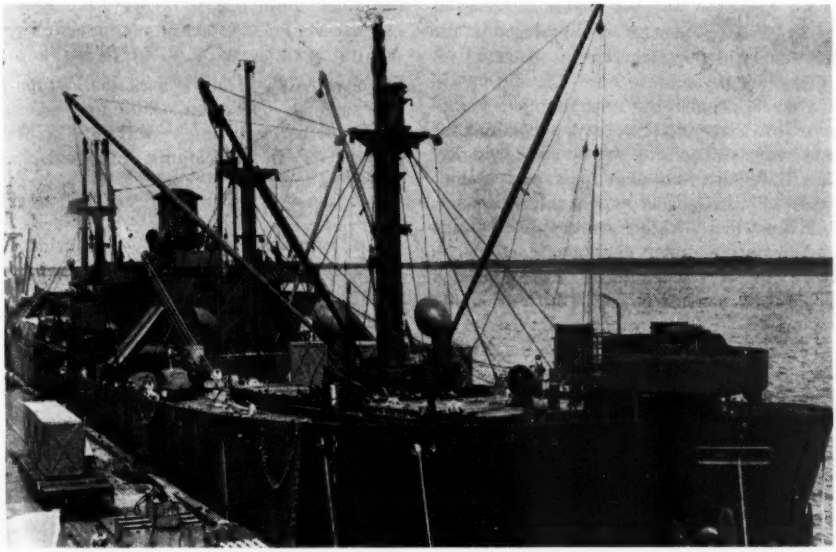
At present the civilian manned Army Transport Service of the Transportation Corps is operating 118 deep sea vessels of which fifty-seven are troop carriers. This total will be reduced by eighty-two by 1 July 1948 due to the completion of the conversion work on ships currently in yards being refitted as peacetime transports and the decrease in requirements. This number will be further reduced as our occupational forces diminish. In addition, the Army controls under time-charter 104 commercial ships engaged largely in hauling relief supplies to occupied areas.

Army cargo movements totalled about 12,125,000 tons during the first ten months of 1947. Of this amount about 90 per cent moved in commercial bottoms. The 10 per cent carried in Army vessels consisted of that carried aboard troopers, that carried to destinations not commercially served by American Flag lines, or cargo which required specialized handling.

Need for Merchant Marine

Since the rather bitter experiences of the Spanish-American War, the Army has followed the policy of operating its transports for the movement of troops due to the special requirements of that type of vessel. It has only carried such part of its cargo as was essential to maintain a small cargo fleet under its own control capable of being used for the rapid reinforcement of outlying areas. This is necessary since considerable time is required both to recall our Merchant Marine from world trade routes and mobilize it for support of the Armed Forces to break out, and to return to service ships in lay-up.

From this I think it can be clearly seen that the Army's reliance upon and interest in the Merchant Marine is not confined to war or preparedness for war alone. The Army is interested in a strong healthy Merchant Marine at all times—this means that a substantial portion of our export business must be carried under the American flag and that American flag vessels must be modern. This, in turn, requires a comprehensive and continuous building program to avoid the obsolescence which results from building only in periods of emergency; that an active shipbuilding industry is necessary and, finally, that a balanced reserve fleet of adequate tonnage must be maintained to meet emergency conditions.



From Pearl Harbor to VJ-day the Transportation Corps moved 127 million measurement tons of matériel and supplies overseas.—Army Signal Corps photo.

Logistics in Retrograde Movements

Lieutenant Colonel W. W. Wendt, *Infantry*
Instructor, Command and General Staff College

ALWAYS present in strategy is the fundamental doctrine that no decisive results can be achieved by the defensive. However, despite the unchallenged soundness of that doctrine, every commander and every staff officer should be thoroughly familiar with the principles and techniques of retrograde movements.

Even when a higher commander retains the initiative under a strategic offensive, it cannot be expected that advances will be either continuous or uniform along an entire front, or within all theaters of operations. Successes will be notable in some areas; inability to advance for periods of time will occur in other areas; and withdrawals and delaying actions will be necessary occasionally in others.

Where the situation requires, and time and space permit, a commander may trade *space* and *combat* for *time* by withdrawing, defending in successive positions, or other retrograde movements, though always keeping in mind the ultimate objective of returning to the offensive and defeating the enemy decisively. This has been true in every war to date, including several outstanding examples in World War II.

In no other type of operation is adequate, continuous logistical support more difficult to achieve than in retrograde movements. These difficulties stem largely from the paradoxical situation wherein the continuous impetus of logistical support from the rear must be maintained throughout a period during which there can be very little actual forward movement.

To provide effective logistical support for such an operation, there are several basic principles which will be helpful to a G-4 in developing his logistical plan.

Continuity of Support

No logistical plan can be considered acceptable for a retrograde movement unless it provides *continuous* support to *all* elements of the withdrawing force, including both the covering force and elements of the main withdrawing body.

Initially, in preparing for a withdrawal it may be necessary to launch a counterattack against the enemy to create temporarily the favorable conditions for a withdrawal. In such a case, logistical support of the counterattack will be G-4's first problem. Such support would normally be along the lines of the preparations to support any attack or counterattack, with the exception that supplies and equipment expended during the counterattack should be replaced in forward areas only to the extent necessary to sustain the limited objective of the counterattack. Such a counterattack may in fact be of considerable assistance to G-4 and the technical services, for it would tend to consume supplies in excess of basic loads, particularly ammunition, which previous conditions might have warranted being dumped on positions. A general reduction of stockages above basic loads in forward areas

is essential in preparing for a withdrawal, with the exception of the supplies necessary to support the counterattack and the covering force. In an extreme situation, the wide use of motor transportation in moving disengaged units to the rear after an initial withdrawal may sometimes preclude the hauling of even basic loads in their entirety from forward areas, particularly if only one round trip can be made.

Concurrently with providing logistical support for the counterattack, G-4 must make provision for the support of the covering force, which will remain in position, normally on a broad front, after the counterattack to protect the withdrawal of the main body. Likewise, part of the light artillery normally remains in position as part of the covering force to support the covering force and other elements still in contact. Since all elements of the covering force normally increase their fire to avoid disclosing the fact that the main body is withdrawing, considerable quantities of ammunition may be required. Also, covering operations normally include wide use of obstacles—natural obstacles supplemented with artificial obstacles. Large quantities of Engineer Class IV and V supplies must be hauled forward to implement such a plan.

All of the supplies to support the covering operations should be brought well forward and dumped, preferably under cover of darkness at least twenty-four hours prior to the commencement of withdrawal of the main body, so as to be immediately accessible to elements of the covering force. In some instances, it may be possible to transfer supplies above current needs from elements of the main body scheduled for early withdrawal to elements of the covering force, thus obviating the necessity of hauling additional supplies forward. This is particularly true of artillery ammunition, where planned fires prior to withdrawal indicate a surplus in forward areas.

Since the covering force normally will be deployed relatively lightly on a broad front, elements must be located at key avenues of enemy advance, and must be prepared for all-around defense. Consequently, supplies for the covering force normally should be decentralized to units, in keeping with the situation. Technical service troops required to assist the covering force in accomplishing its mission—for example, combat engineers and medical personnel—normally are attached, as distinguished from being in support.

In addition to the support of the counterattack and the covering force, if the withdrawal plan calls for defense of successive positions, personal reconnaissance must be made, and each such successive position organized, well in advance of withdrawal to it. Logistical installations and supply dumps must be so sited as to support contemplated operations from each such position, to provide continuity of support as each position is defended in turn. Supplies for this purpose, in quantities sufficient only for contemplated operations, may be either moved from the front, or moved forward from the rear, depending upon the situation.

Similarly, medical and maintenance installations must be echeloned to the rear in such a manner as to provide support for each successive position. With the exception of medical personnel attached to the covering force, supporting medical installations are echeloned to the rear early. On a division level, platoons of

While the offensive remains the dominant concern, commanders and their staffs must be familiar with and plan for the many difficult logistical problems which are involved in the event of a withdrawal

the clearing company are echeloned back successively, but always with a forward platoon remaining open to receive casualties until platoons echeloned to the rear are open, thus providing continuity of support at all times. Evacuation to rearward clearing platoons should commence as soon as they are established, to permit early closing and displacement of forward ones. The same principle of echelonment of medical installations applies to higher levels. Prompt evacuation of division clearing stations and supporting evacuation hospitals by higher echelons is indispensable to mobility of medical installations and displacement in keeping with the withdrawal plan.

However, despite the fact that logistical support must be provided for each successive position, the primary consideration in echeloning all installations must be the support of the *final* defensive position, and such installations must be located, where possible, beyond medium artillery range as the final position is being defended. Where the situation will not permit an alternative, main supply installations may be echeloned initially to locations from which they can support the *final* defensive position, with required quantities of supplies being dumped at intermediate positions.

Movement of Logistical Elements *Must Not* Interfere with Combat Troops

When infantry elements withdraw from contact with the enemy, generally they are forced to move straight to the rear until clear of hostile light artillery fire. This movement normally takes them through the regimental rear areas, where trains and service elements are located. Such installations must be echeloned to the rear, usually under division control, prior to the actual withdrawal of the infantry elements, if such combat elements are to withdraw without confusion and delay.

Where possible, service troops and installations should be echeloned to the rear during the night prior to the night of withdrawal of the main body, if secrecy considerations permit. In addition to being desirable in some cases, it may be necessary in others. If the withdrawal road net is restricted, it may be a logistical impossibility to withdraw all elements during one night, and consequently in such a case the withdrawal of logistical installations twenty-four hours ahead of the main body may be the only possible alternative. In such a case, secrecy may be maintained by use of aggressive and extensive counterreconnaissance air screen over the sector during the twenty-four hours following the withdrawal of the logistical installations.

Simplicity

Night withdrawals are usually more successful than daylight withdrawals, therefore, normally they are made at night. Basic simplicity is essential to success in all night operations.

Make no unnecessary changes in formation. An initial withdrawal straight to the rear on a broad front, where the road net will permit, simplifies execution, because it takes *maximum* advantage of available roads. Even though ultimately the maneuver may develop into a coverging retrograde movement to rest flanks on protecting natural obstacles or to take advantage of terrain, an initial withdrawal straight to the rear is the easiest type of withdrawal to execute.

Zones of action assigned to subordinate units, utilizing the best and most direct routes to the rear, also facilitate a withdrawal. In addition, they facilitate the simultaneous movement of withdrawal elements to the rear by motor transportation, after they have cleared enemy light artillery fire.

Lines of communication should not be changed during a retrograde movement unless such a change is absolutely es-

sential. Road maintenance, usually associated with such a change, should be kept to a minimum, because a majority of the engineer effort must be free to assist in placing mines, obstacles, and demolitions well forward, probably with the covering force.

Coordination and Control

Considering the probability that front-line units are already intermingled and disorganized to a considerable extent, because of conditions which necessitate the withdrawal, the difficulty, as well as the necessity, of careful coordination and control is apparent. Extraordinary measures must be taken during retrograde movements to insure effective coordination and control.

A commander should provide for coordination and control by prescribing at least the following in the withdrawal order:

1. Times of withdrawal.
2. Zones of action.
3. Routes.
4. Priorities.
5. Objectives.
6. Successive or phased rear boundaries.

The establishment of successive or phased rear boundaries is of special importance to a G-4 or S-4. It insures a minimum of confusion by preventing regimental, division, and corps combat and technical service installations from becoming hopelessly intermingled in the rear area at a critical time when such confusion would interfere with effective logistical support. This principle of early establishment of rear boundaries is sometimes overlooked in the formulation of withdrawal plans. They must be established early in the planning phase, and the principle applies with equal force to all levels of command. Division must establish new rear boundaries for regiments; corps for divisions; army for corps; and, where applicable, theater for army. To plan properly, a G-4 must have timely definite information on the location of the phased rearward limits on movement for logistical installations.

One of the subtle but more important points in a coordinated and controlled withdrawal is the timely dissemination of the withdrawal plan to subordinate units. These units must have sufficient time to digest thoroughly the withdrawal plan, make such daylight reconnaissance and marking of routes and successive defensive positions as are necessary, and prepare their own unit plans. It is especially true of retrograde movements that even a mediocre plan, published sufficiently in advance of execution, and executed with coordinated vigor, is far superior to a truly masterful plan which is disseminated too late for units to make reconnaissance and make sound plans of their own.

Before and during the actual withdrawal, all available means and measures are employed to insure the rapid and uninterrupted movement of the withdrawing force. Initial points and phase lines to be cleared by columns at prescribed times should be designated.

After the movement starts, strict control of traffic by military police and staff officers at critical points will be necessary to prevent congestions and delays. All military police officers, and each staff officer assigned to reinforce the military police during the movement, must be thoroughly familiar with the withdrawal plan, so as to enable them to make intelligent decisions and establish sound priorities, in keeping with the plan, as situations arise which call for on-the-spot decisions. A high degree of march discipline by units and traffic discipline by each individual driver are also required.

All forward movement during the actual withdrawal must be reduced to a minimum. In some situations, depending upon the road net, all forward movement must be stopped, lest the rearward movement of the main body be jeopardized. In other situations, where the road net is ample

and other circumstances permit, limited forward movement may be permitted, with priorities of forward movement specified in orders, and rigidly enforced by movement control and traffic control agencies. Care likewise should be taken to guard against unanticipated traffic coming into the division area, for example, from adjacent division areas at a time and place as would disrupt the execution of the withdrawal.

Flexibility

As soon as any withdrawal is detected by the enemy, he can be expected to use every means at his disposal to follow it up relentlessly, and to strike withdrawing forces from any possible direction, including extensive use of air. It should be assumed for planning purposes, therefore, by a commander and his staff that the enemy will be successful in partially disrupting execution of the withdrawal plan. Flexibility, therefore, is most important. Have alternate plans. Have alternate routes and detours, so that movement can continue uninterruptedly if damage occurs at any point.

Destruction of Supplies and Equipment

All supplies and equipment should be evacuated, if possible. Those which cannot be evacuated must be destroyed. Every precaution must be taken to prevent supplies or equipment in usable condition falling into the hands of the advancing enemy. Indoctrination in this principle cannot be achieved in a split second, when the actual necessity arises. Units and individuals must be trained well in advance, as part of basic and technical training, concerning the specific techniques which are most effective in destroying or rendering each item of equipment useless by the removal and destruction of essential parts.

Early indoctrination and instruction in this matter has a dual advantage. Not only does it render destruction of equipment more complete and effective when the necessity arises, but it likewise tends to bolster morale by instilling in units and individuals the point of view that a retrograde movement is simply another type of military operation and maneuver —an attitude of professional matter-of-factness which enhances the chances of success at a critical time.

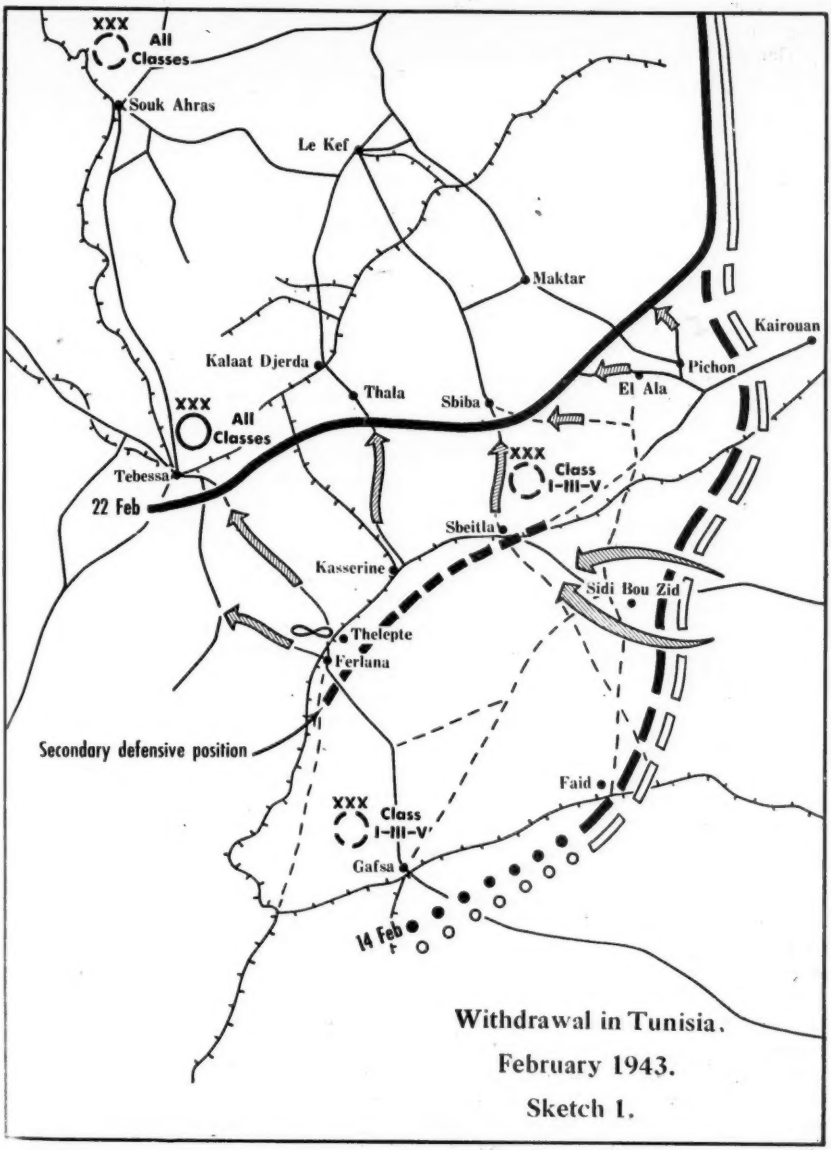
Historical Examples

During World War II, American forces were confronted on two separate occasions with the necessity for large scale retrograde movements before resuming the offensive once again. The first was in southern Tunisia in February 1943, and the second and larger withdrawal was in the Ardennes in December 1944.

Consider the situation in southern Tunisia in February 1943, when Rommel launched his heavy armored attack at Faid against the lightly held American II Corps sector. This offensive resulted in the withdrawal of II Corps, and the German advance was not checked until eight days later after a bitter struggle at Thala, near Kasserine pass (see Sketch 1).

The II Corps was holding a sixty mile front at the time, and its total strength consisted of one infantry division plus one combat team, one armored division, and a few supporting corps troops. American infantry elements were disposed generally along the line of contact, and armored elements, in combat commands, were located approximately fifteen miles in rear. The American 34th Infantry Division, less one combat team and one infantry battalion, operating under the French XIX Corps under the British First Army, was holding a thirty mile front immediately north of the II Corps sector.

The German main effort was directed at the Faid area, and its strength was sufficient to effect breakthroughs at two points with comparative ease. Infantry strongpoints were by-passed in several instances, and later units in them were either destroyed or captured. The second-



Withdrawal in Tunisia.
February 1943.
Sketch 1.

ary defensive positions were generally along the line: Thelepte—Sbeitla, where the German armor encountered the bulk of the American armor.

The II Corps was operating as an independent corps, with the resulting logistical functions. The II Corps supply depots were located in the vicinity of Tebessa, with forward supply points located at Gafsa and Sbeitla as the German offensive began. The Gafsa supply point was quickly overrun by the enemy, but the defense of Sbeitla made it possible to exhaust most of the stocks there by issue, with the exception of ammunition. Since evacuation of this ammunition from Sbeitla was impossible under the circumstances, attempts were made to destroy it. It was there that it was discovered precisely how difficult it is to destroy ammunition, incredible as it may sound. The best available efforts to destroy it with TNT resulted merely in the scattering of the stacks.

At the time of the German attack, II Corps had itself been building up for an offensive against Rommel's right flank as he was withdrawing before Montgomery's Eighth Army. Supplies to support the attack had been built up at Tebessa in considerable quantities, well beyond the II Corps capabilities to move them to the rear during the German offensive. Issue was continued from the Tebessa depots, but all resupply shipments from the rear were stopped at Souk Ahras, approximately fifty miles to the northwest, where new II Corps depots were opened. Hospitals and maintenance units were also evacuated to the northwest.

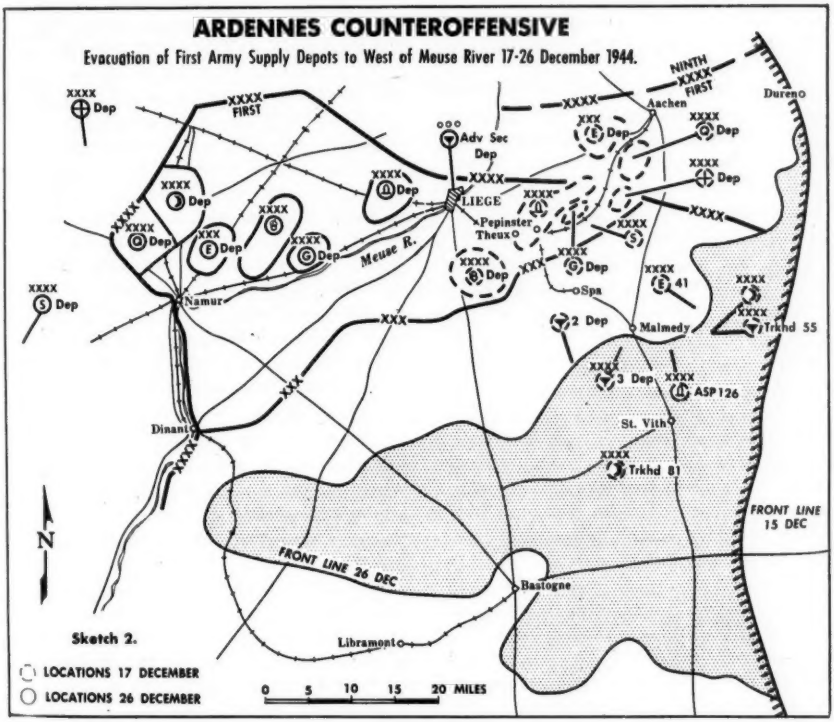
Unable to hold the Thelepte—Sbeitla positions, II Corps elements withdrew to defend the corridor leading northwest from Kasserine pass, which was the most favorable avenue of advance to the northwest for the Germans. By holding the shoulders of the pass firmly, with constant reinforcement by units from the northern sectors, the German drive was stopped and the German withdrawal began.

In the 34th Infantry Division sector immediately north of the II Corps, the relief of French elements by the 34th Division had barely been accomplished when the breakthrough at Faid occurred. While the main effort of the German attack was located in the Faid area, German "reconnaissance in force" elements were probing the 34th Division sector. With the breakthrough on the 34th Division's right and with its right flank suspended in mid-air, a withdrawal was ordered to a new defensive line thirty kilometers to the west, with the 133d Combat Team covering the withdrawal of the main body.

The 34th Division's withdrawal was a successive withdrawal, because of the restricted road net. Only one mediocre road was located in the 34th Division sector, and it served as the main supply road. However, the 109th Combat Engineer Battalion had just finished developing another trail into a passable road to assist in the relief of the French. By tight scheduling of march groups, a night withdrawal, including the shuttling of most infantry elements, was effected over these two roads without major incident, while the 133d Combat Team fought off the German advance elements. Division logistical installations were moved twenty-four hours in advance to sites previously reconnoitered. On 18 February, the 34th Infantry Division, with the 18th Combat Team of the 1st Infantry Division attached, was in the new position, defending a gap in the mountains leading to the Sbiba-Rohia highway.

In retrospect, the withdrawal in southern Tunisia appears to have been executed well, in the light of all the circumstances. However, there were some basic lessons learned during the operation, the most important of which was that *supplies which must be abandoned must be destroyed.* Considerable quantities of use-

able equipment, supplies, and vehicles fell into the hands of the enemy in the II Corps sector. In a few instances, no attempt was made at the destruction of such equipment by American units. In more instances, however, despite the attempt being made, efforts at destruction were only partially successful, largely because



of lack of indoctrination and lack of knowledge of destruction techniques on all levels. It was not until after that operation, for example, that it became standing operating procedure to carry an incendiary grenade strapped to the steering column of each vehicle to make its destruction a simple matter if capture of the vehicle appeared to be imminent. It was not until after that operation, too, that ordnance recovery units were assigned the additional mission of locating and destroying, demobilizing, or rendering useless all equipment left behind in a withdrawal. Three months later, in May, these same American units were to witness a truly masterful example of destruction of supplies and equipment by the Germans, when their surrender in Tunisia was imminent. With characteristic German thoroughness, the *Afrika Korps* rendered most of its equipment useless except for scrap.

Consider, likewise, the largest retrograde movement of World War II—the withdrawal by First Army before the powerful, well planned, and well executed

counterattack by the German Army in the Ardennes, which began the morning of 16 December 1944, and which had for its objective the splitting of the American forces, and the capture of the port of Antwerp to deny its use to the Allies (see Sketch 2).

The German attack struck along the boundary between the V Corps and VIII Corps in the First Army sector. "Logistics," as such, played an enhanced role as a limited objective of the enemy in this particular operation. In connection with the attack, a special operation known as *Greif* or "grab" was to be undertaken by the Germans, using American vehicles, American weapons, American insignia, and American uniforms, all taken from previously captured American prisoners. Its purpose was to seize the American supply installations along the axis St. Vith—Dinant. The enemy intended to keep his armored vehicles rolling with captured gasoline, and his soldiers fed with captured rations.

Attacking with strength through a lightly held sector, the initial German onslaught met with considerable success. As soon as the strength of the attack could be estimated with reasonable accuracy, the necessity for large scale evacuation of First Army logistical installations became apparent. Concurrently with maintaining continuous support to combat elements in a fluid situation, chiefs of technical services were directed to make reconnaissance and move all depots, hospitals, and maintenance installations west of the Meuse River, with the exception of those forward installations in direct support of each corps.

Simultaneously, all forward shipments of supplies to army depots from communications zone were stopped, with forward supply points supplied from existing army depot stocks to assist in depleting stocks in the army depots which would otherwise have to be evacuated.

Likewise, arrangements were effected for a readjustment of boundaries. First Army rear boundary, generally along the Meuse River at the beginning of the attack, was moved west of the Meuse. Similarly, adjustments were made in corps division lateral and rear boundaries by appropriate headquarters.

Immediately thereafter, the evacuation of all army supply depots, and many of the hospitals and maintenance installations to west of the Meuse River began. Despite the fact that as many as eighteen of the thirty-seven truck companies available to First Army were employed daily in tactical troop movements, all available remaining means of transportation, including railroads, were mobilized for the evacuation of supplies. Seventy-four semitrailer units were obtained from Advance Section, Communications Zone, to assist in the task, and 3,390 railroad freight cars were used. Including all classes, approximately 45,000 tons of supplies were moved during the period 17-26 December.

One of the most noteworthy examples of evacuation of supplies was the movement of stocks of Class III from First Army Depots No. 2 and 3, near Spa. These supply installations constituted a most valuable prize for the enemy, and were nearest the enemy threat. Evacuation of Depot No. 3 began on 17 December, and stocks on hand at that time were 797,730 gallons of gasoline and 305,085 gallons of greases and oils. All stocks were evacuated by 1300 hours, 19 December, with the exception of 123,245 gallons of gasoline which were ignited by infantry troops as an effective road block against enemy tanks advancing in the immediate area. The evacuation of Depot No. 2 began the night of 18 December, at which time the total stock was 2,110,920 gallons of gasoline, and 115,180 gallons of oils and greases. This stock was entirely evacuated by the night of 20 December. Most of this was moved by truck to Spa, Theux, and

Pepinster, loaded on railroad cars, and moved by rail to west of the Meuse. Forward supply points were still supplied from these depots during most of the time they were being moved. Later, however, continuity of support to forward supply points was effected by direct issues to forward First Army supply points from the Advance Section Class III Depot at Liege.

Evacuation of other supply depots, maintenance installations, and hospitals followed this same general pattern.

Continuity of logistical support was achieved also by a variety of other means. In addition to those already mentioned, when the enemy penetration threatened to sever the First Army lines of communication to VIII Corps, initial arrangements included the loading of railroad trains with ammunition and gasoline, which were routed to the vicinity of Libramont and held mobile under control of VIII Corps for consumption or movement, as the tactical situation required. Later, when severance of lines of communication appeared imminent, arrangements were effected to transfer VIII Corps to Third Army, with logistical support to be supplied from that source.

Continuity of support to units and elements completely surrounded by the enemy was attempted by means of air drops, which were successful in part and unsuccessful in part. Bad weather prevented the flying of several missions which were arranged for, and one drop was faulty, with the result that the sorely needed supplies fell into the hands of the enemy.

To provide continuity to other elements, lines of communication to the corps had to be shifted because of the drastically changed situation. However, despite anxious moments, it appears that at no time was there a serious lapse in the supply, evacuation, transportation, or maintenance support of corps, divisions, or separate units during this period.

Flexibility was evident in the comparative ease with which lines of communications were shifted in accordance with the fluid, changing situation without loss of continuity. Flexibility was also achieved by such previously mentioned expedients as the mobile load supplies under control of VIII Corps. A similar measure was adopted to support VII Corps, although the installation remained under control of First Army. With the assistance of truck companies attached by higher headquarters during this critical period, a "mobile" ammunition supply point, consisting of 125 selectively loaded trucks, was placed in support of the VII Corps during a particularly fluid period. This mobile supply point issued direct from its trucks, but was at all times prepared to withdraw to the rear should the situation dictate.

Once the planned evacuation began, control of movements was effected largely through the existing standing operating procedure within First Army on movement control and traffic control. The existing procedure appears to have been flexible enough to provide adequate control during this peak movement load. In addition to the tremendous movement of supplies occurring between 17 and 26 December, 197 troop movement convoys were cleared by First Army traffic headquarters, with routes and times specified, which movements involved 48,711 vehicles and an estimated 248,000 personnel. At no time was there a serious traffic jam, and further, at no time was a troop movement seriously delayed by movements of supply or service installations—another of our basic principles.

Also recognized and applied for the most part was the principle that supplies which have to be abandoned must be destroyed, despite the fact that most essential supplies and equipment were successfully evacuated. When ASP 126 was about to be captured, 200 tons of demolition material which would be readily use-

able by the enemy were destroyed. Weapons, vehicles, and other equipment were destroyed or rendered useless likewise in those instances where evacuation was impossible. The enemy, however, did capture 50,000 "C" rations and 50,000 gallons of gasoline when the trains area of one armored division was overrun.

Conclusion

A retrograde movement is indeed a most difficult operation for which to provide adequate, continuous, logistical support. Foresight, sound planning, and much hard work are involved for G-4 and the technical services. When the over-all tactical situation indicates even a remote possibility of the necessity for a withdrawal, that is not the time for a G-4 to bask in the reflected glory of press accounts of the invincibility of American arms. A tentative logistical plan for the possible withdrawal must be developed immediately, even though with the fervent hope that such a plan will never need be used. As the plan is being developed, it should be checked against these basic principles: (1) Continuity, (2) Non-Interference with tactical movements, (3) Simplicity, (4) Flexibility, (5) Control, and (6) Destruction of abandoned matériel.

The solidarity developing among the peoples of North and South America is a significant contribution to security in this hemisphere. Unique in geographical extent, in the number of independent nations involved, and in the spirit of harmony that characterizes it, the unity of the Americas is a relatively new element on the international scene and one whose importance may not yet be generally realized. It is evident, however, that a potential aggressor against any nation in either continent would hesitate to launch an attack which he believed would provoke coordinated, hemispheric response.

General of the Army Dwight D. Eisenhower

July 1945

Like many another American citizen appalled by the cost and destructiveness of modern war, I feel that the people of this world who fight and die in these wars are the ones who most desperately want to keep the peace. For there is deeply rooted in most men the human characteristics of fraternity, decency and good will.

And yet caution compels me to warn the American people that we must make our way in a world as it is—rather than as we might wish it to be.

For if we permit our longings, our aspirations and our hopes for peace to obscure the deterrents that still block our way, we shall only delay achievement of the goal toward which we strive.

General Omar N. Bradley

G-2, Army of the Potomac

Lieutenant Colonel C. T. Schmidt, *Infantry*
Instructor, Command and General Staff College

TODAY we are particularly conscious of the importance of military intelligence in the conduct of war. A considerable, and growing, part of our military activity is concerned with the problems of collecting, analyzing, and disseminating information of significance to the Armed Forces, at both strategic and tactical levels. And this is as it must be. However, in our enthusiasm we sometimes imply that the importance of military intelligence and its methods are a unique discovery of our age.

In the military field, as in other fields, we forget too often that men of the past had to cope with many problems fundamentally akin to ours. An eye to history will remind us of that. Moreover, a knowledge of the successes and failures of the past may save us a good deal of trouble with our own tasks. After all, the essential problems of war—including the problem of knowing the enemy and the battlefield—have altered little, if at all. It is the *means* available to the commander and his troops, and to the communities behind the battlefields, that have changed. In some instances the means have changed less than we might suppose.

The American Civil War—because of its magnitude and its abundant legacy of records—is eloquent testimony of this observation. It illustrates, over and over again, the strategic principles of war, and its many examples of leadership and lack of leadership are lessons to all of us today. It also presents urgent reminders of the importance of military intelligence, of its close relationship to sound leadership, and of how to get information.

The following pages are concerned with the intelligence effort of a famous field army of the Civil War, the Army of the Potomac. The story of that Army shows once again that to be effectively led, troops must be intelligently led. In its first major campaign, the Army of the Potomac knew too little of the enemy and the terrain, and that little was often false. Later its fortunes rose, and it is likely that an improved intelligence service was an important factor in its ultimate success. Incidentally, details of the Army's intelligence process—the interrogation of prisoners, the agent and double agent, the concern over leaks to a talkative press, the order of battle expert—have a familiar ring in the ears of today's G-2.

One day in August 1861, Major General George McClellan, newly appointed commander of the incipient Army of the Potomac, sat down at a desk in his headquarters in Washington. He was filled by his new, high responsibilities, and buzzing with ideas. He thought a bit, and then dashed off a letter to the commander of the United States Army, the aged Winfield Scott.

"General: Information from various sources reaching me today through spies, letters, and telegrams, confirms my impressions, derived from previous advices, that the enemy intend attacking our po-

sitions on the other side of the river, as well as to cross the Potomac north of us.... I am induced to believe that the enemy has at least 100,000 men in front of us. Were I in Beauregard's place, with that force at my disposal, I would attack the positions on the other side of the Potomac, and at the same time cross the river above this city in force. I feel confident that our present army in this vicinity is entirely insufficient for the emergency....I therefore respectfully and most earnestly urge that... nothing be left undone to bring up our force for the defense of this city to 100,000 men before attending to any other point.... The vital importance of rendering Washington at once perfectly secure and its imminent danger impel me to urge these requests with the utmost earnestness, and that not an hour be lost in carrying them into execution...."

General Scott did not like this letter. No—he could not agree with his junior's estimate of the situation. More than that, the letter's confident and urgent tone was offensive to his ancient pride. And so, next day, boiling mad, "Old Fuss and Feathers" wrote to the Secretary of War:

"Sir: I received yesterday from Major General McClellan a letter of that date, which I design this as my only reply.

"Had Major General McClellan presented the same views in person, they would have been freely entertained and discussed. All my military views and opinions had been so presented to him, without eliciting much remark in our few meetings, which I have sought in vain to multiply. He has stood on his guard, and now places himself on record. Let him make the most of his unenvied advantages.

"Major General McClellan has propagated in high quarters the idea expressed in the letter before me, that Washington was not only 'insecure,' but in 'imminent danger.'

"Relying on our numbers, our forts, and the Potomac River, I am confident in the opposite opinion; and considering the stream of new regiments that is pouring in upon us (before this alarm could have reached their homes) I have not the slightest apprehension for the safety of the Government here.

"Having now been long unable to mount a horse, or to walk more than a few paces at a time, and consequently being unable to review troops, much less to direct them in battle—in short, being broken down by many particular hurts, besides the general infirmities of age—I feel that I have become an incumbrance to the army as well as to myself.... Accordingly, I must beg the President, at the earliest moment, to allow me to be placed on the officers' retired list, and then quietly to lay myself up—probably forever—somewhere in or about New York. But, wherever I may spend my little remainder of life, my frequent and last prayer will be 'God save the Union!'"

McClellan "stood on his guard," so far as General Scott was concerned. It is not surprising that the uncertain division of authority between the two Generals should have been painful to both. When the proud old Scott retired from the scene, at the end of October, McClellan said to the President. "It is a great relief, sir. I feel as if several tons were taken from my shoulders."

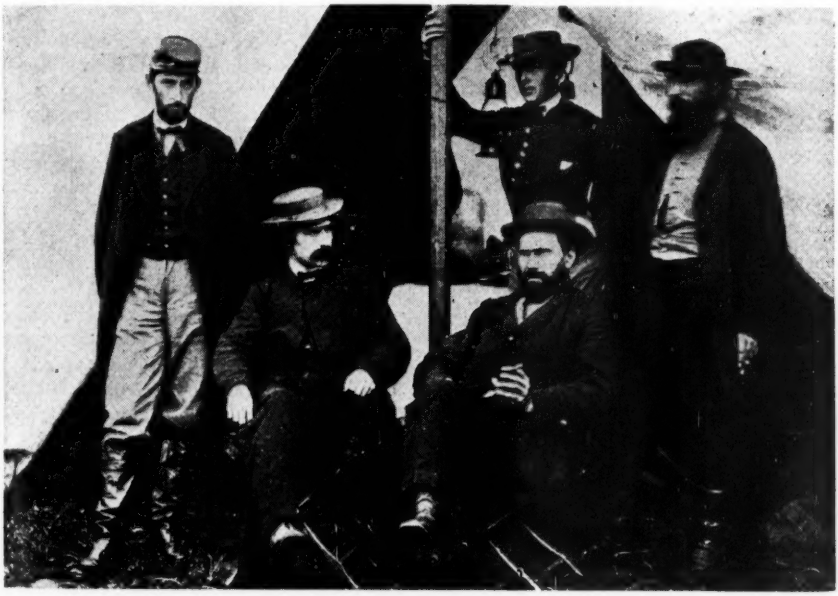
Unhappily, McClellan also stood on his guard against the enemy across the river. That enemy did not conveniently retire. And "Little Mac" was to remain on guard against what he was "induced" to view as a vast host—until he himself was sent into retirement.

McClellan was much in error in his estimate of the Confederate battle force. General Joseph E. Johnston, Confederate States of America, who commanded the Army beyond the Potomac and therefore should have known more about it than McClellan, could report a strength of only 41,000 at the end of October. His command grew slowly, until by the end of

1861 it numbered 57,200—still far short of McClellan's bulging "100,000."

What were the sources on which McClellan relied for his impression of the enemy? In his own words, the General gives us his answer:

"Immediately after being assigned to the command of the troops around Washington, I organized a secret service force under Mr. E. J. Allen, a very experienced and efficient person. This force, up to the time I was relieved from command, was continually occupied in procuring, from all possible sources, information regarding the strength, positions, and movements of the enemy. All spies, 'contrabands,'* deserters, refugees, and many prisoners of war, coming into our lines from the front, were carefully examined—first, by the outpost division commanders, and then by my chief-of-staff and the provost-marshal-general. Their statements... comprised a mass of evidence which, by careful digests and collations, enabled me to estimate with considerable accuracy the strength of the enemy before us."



Allen Pinkerton, alias "Major Allen," headed Major General McClellan's "secret service" for the Army of the Potomac. Pinkerton is seated on the right, with William Moore, private secretary to the Secretary of War. Standing, left to right, are George H. Bangs, John C. Babcock, and Augustus K. Littlefield, operatives (1862).

And who was that "experienced and efficient person" for whom McClellan had so high a regard? "Mr. E. J. Allen" was really Allen Pinkerton, the renowned private detective. Pinkerton, a clever and conscientious Scot, had founded his detective agency in Chicago in 1852. A few years later, McClellan—then vice-president of the Illinois Central Railways—

* Negro slaves brought within the Union lines.

hired Pinkerton to do some confidential work for the railway company. McClellan was impressed with Pinkerton's ability as an investigator—indeed, the two men ever after held each other in high esteem.

McClellan was appointed to command the Ohio Militia and Volunteers in April 1861. Mindful of an urgent need to learn what was going on south of the Ohio River, the young general remembered his old detective friend. Pinkerton was the very man to be the General's eyes and ears! And so McClellan wrote post-haste: "Would Mr. Pinkerton see the General with the least possible delay?" The detective accepted the offer. Immediately, and with laudable zeal, he went to work. Calling in his staff of operatives, he set up shop in Cincinnati as a military secret service. Late in July, McClellan was called to Washington, to take command of the nascent Army of the Potomac, an army still smarting from Bull Run. Pinkerton went along under the *nom de guerre* of Major E. J. Allen"—an alias suggested to him by McClellan, in the interest of security. He continued to serve as the Army's chief of intelligence until, after Antietam, "Little Mac" was finally relieved.

Pinkerton, abolitionist and "bosom friend" of John Brown of Harper's Ferry, had already ferreted out Confederate secrets before joining McClellan's staff. In the early months of 1861, Baltimore was a hot-bed of secessionist conspiracy. Much talked about by the Maryland Confederates was a scheme to destroy railway bridges between Washington and Philadelphia, and thus to sever communications between the Capital and the North. In this situation, S. M. Felton, president of the Philadelphia, Wilmington, and Baltimore Railway, called on Pinkerton and his agents to act as the railway's private spies and guards. While helping the railway company to keep its bridges intact, Pinkerton ran across a plot to assassinate President Lincoln, who was about to travel from Springfield to Washington for his inauguration. Posing in Baltimore saloons and hotel lobbies as Southern hotheads, Pinkerton and his under-cover men soon wriggled their way into the conspiracy. They learned enough of the would-be assassins' plans to safeguard the President on his trip through Maryland to the Capital.

In those dark days, the Federal Government was without any organized secret service. There was nothing resembling a Federal Bureau of Investigation, no Army or Navy Intelligence. Apparently the thought of setting up a secret service agency occurred to Lincoln, and he went so far as to call Pinkerton to Washington for consultation. But in the fog of bureaucratic confusion, the plan remained on official desks, untouched. "After several unsuccessful attempts to obtain satisfying particulars from the heads of several of the departments"—as Pinkerton phrased it—the detective accepted General McClellan's invitation. This was a misfortune for the Government, for Pinkerton's talents would probably have been more suited to political espionage and detection than to strictly military intelligence.

Pinkerton worked hard and loyally for McClellan. His first mission in Ohio set the pattern for all his intelligence operations. Its object was to send agents into Kentucky and Tennessee, "for the purpose of obtaining information concerning the numbers, equipments, movements, and intentions of the enemy, as well as to ascertain the general feeling of the Southern people in regard to the war." Pinkerton wrote: "I fully realized the delicacy of this business, and the necessity of conducting it with the greatest care, caution, and secrecy. None but good, true, reliable men could be detailed for such service." Most of the Pinkerton sleuths seem to have been unencumbered by military training and experience. This may well account for their wide-eyed concentration on the more

romantic and hair-raising aspects of the job, and for their chronic inflation of the Confederate arms. The Pinkertons picked up their information by donning motley disguises—now a bemonocled English lord, now a stuttering peddler, now a snake-eyed Simon Legree—and then pumping amiable and garrulous Confederates.

For one lengthy mission beyond the Confederate lines—a mission that called for "coolness and tact, as well as courage"—Pinkerton chose himself. On this trip Pinkerton uncovered an early proposal for chemical warfare. A Confederate army surgeon revealed to him his plan for filling "a commissary wagon with whiskey, in which had been previously mixed a generous guantity of strychnine. The wagon was then to be broken and abandoned and left upon the road so as to fall into the hands of the Union soldiers." Fortunately, this fiendish project was given no sympathy by the doctor's more honorable associates, and the "soldiers were enabled to drink their whiskey untainted with any other poisonous influences than is naturally a part of its composition." Probably more valuable was Pinkerton's interview with General Pillow, CSA, during which, over warming brandies, the General spoke much too freely of his battle plans. Most informative, Pinkerton reveals, were "the colored men, who were employed in various capacities of a military nature which entailed hard labor." The ace detective returned from his journey with "plans of the road, a description of the country, a pretty correct estimate of the troops and their various locations and conditions." Upon reporting to headquarters, he was "rejoiced to find General McClellan fully satisfied."

In Washington, McClellan authorized Pinkerton to have "such strength of force as he might require." His headquarters would be near the General's (he occupied a house on I Street), so that they "might always be in close communication." He would accompany the Army into the field. All spies, refugees, deserters, and prisoners of war were to be carefully examined by Pinkerton for information on the Confederate Army. The detective, however, was especially interested in the Southern spies and informers then infesting Washington. He made arrangements so that his operatives should have "entree to the gilded salon of the suspected aristocratic traitors, and be their honored guest, while others will act in the capacity of valets, or domestics of various kinds, and try the efficacy of such relations with the household to gain evidence. Other suspected ones will be tracked by the 'shadow' detective, who will follow their every footstep, and note their every action." Pinkerton was also on the look-out for "any secret traitorous organization which might be in existence," and was eager to have his agents become members of such conspiracies, "with a view to ascertaining the means employed in transmitting messages through the lines, and also for the purpose of learning the plans of the rebels."

Another and more dangerous feature of the Pinkerton service was that of "entering rebel lines, and endeavoring to obtain accurate information of the nature of their defenses, the number of troops under their command at various points, etc." All this was valuable and necessary. But the production of combat intelligence was likely to be incidental to the fevered pursuit of spies and conspirators.

McClellan was well aware of the importance of thorough and coordinated interrogation of prisoners of war. An order over his signature, dated 16 December 1861, directed: "All deserters, prisoners, spies, 'contrabands' and all other persons whatever, coming or brought within our lines from Virginia, shall be taken immediately to the quarters of the commander of the division within whose lines they may come or be brought, without previous examination by anyone, except so far as may be necessary for the officer commanding the advance guard, to elicit

information regarding his particular post; that the division commander examine all such persons himself, or delegate such duty to a proper officer of his staff, and allow no other persons to hold any communication with them; that he then immediately send them, with a sufficient guard, to the provost marshal in this city (Washington) for further examination and safe keeping; and that stringent orders be given to all guards having such persons in charge not to hold any communication with them whatever; and further, that the information elicited from such persons shall be immediately communicated to the major-general commanding, or to the chief-of-staff, and to no other person whatever."

Two months later, McClellan directed that the interrogation by the division commander "only refer to such information as may affect the division and those near it; especially those remote from general headquarters.... Division commanders will at once communicate to other division commanders all information thus obtained which affects them." In addition, the division commanders were directed, whenever they desired to send scouts toward the enemy, to inform McClellan's headquarters, so that "I might determine whether we already had the information it was proposed to obtain." These orders reflect the careful, logical thinking of McClellan. But somehow neither his prescriptions nor the efforts of the Pinkerton service resulted in a sound assessment of the enemy's capabilities.

Pinkerton declares in his memoirs that he concentrated his entire detective force "of both sexes" on his clandestine work. His staff included gifted and daring individuals, and at least one genius of espionage—Timothy Webster. Impersonating a rabid Secessionist, Webster insinuated himself into the Confederate secret service, and even became a trusted acquaintance of General Winder, Provost-Marshal in Richmond. According to Pinkerton, Webster "was able to report very correctly the number and strength of the fortifications around the rebel capital, to estimate the number of troops and their sources of supplies, and also the forts between that city and Manassas Junction." But the bungling of two other of Pinkerton's agents finally betrayed Webster to the Confederates. He was hanged as a spy.

Pinkerton's reminiscences give no indication that he recognized the peculiarly military character of his activities. There is no suggestion that he might have produced better estimates of the Confederate strength through an organization more military in training and discipline. During the war, his service remained essentially what it was in peace—a private agency investigating for a client, whether he be Mr. McClellan, railway executive, or General McClellan, army commander. There is no evidence that the Pinkertons operated in coordination with the information-collecting facilities of the troops.

Pinkerton's counterintelligence services were important, as probably also were some of his findings in what we would now call the field of strategic intelligence. But his combat intelligence was woeful. In the vital matter of estimating the battle capabilities of the Confederate field forces, McClellan was led astray by his faithful investigator. Pinkerton knew nothing of soldiering, and seems always to have spied two troopers in Confederate grey wherever there was only one. To a man like McClellan—cautious, plodding, and unaggressive—such exaggeration of the enemy's forces was paralyzing. We have seen that McClellan, as early as August 1861, was "induced" to accept a confederate strength of "at least 100,000" across the Potomac —more than twice its true number. McClellan stoutly resisted Lincoln's urgings that he take the offensive during the fall of 1861, and Pinkerton's intelligence was a prime factor in his resistance.

When at last, in the spring of 1862, the Army of the Potomac began to move upon Richmond by way of the Peninsula, Pinkerton went along, always discovering an enemy superior to the Federals in strength and discipline. In May, the Confederate forces in front of McClellan were estimated by the detective to comprise "100,000 to 120,000 effectives"—just double their actual strength. After Jackson joined Lee, Pinkerton raised the estimate to Harrison's Landing and entrenched, to await orders for abandonment of the campaign that was to have stormed the citadel of the Confederacy.

Pinkerton worked hard and zealously throughout this period. In his own words, he "gave untiring personal supervision to the management of the large corps of men and women, white and black, then engaged in obtaining information. My reports were made daily, in writing, and

A group of scouts and guides who gathered military information for the Army of the Potomac under Pinkerton's direction in 1862.

200,000. McClellan, though in sight of Richmond, was able to count only 115,000 of his own men present for duty. He saw himself vastly outnumbered.

Unhappy McClellan! He did not know that the Confederates had suffered heavy losses at Seven Pines; he did not know that they were in poor condition for another battle; nor did he know that Lee had only 80,000 to 90,000 effectives in June. He allowed Lee to take the initiative. With his superior army he fell back to

were also matters of almost daily discussion among the general officers and their staff." On at least one occasion he rode out with a cavalry patrol trying to locate enemy positions, and had his horse shot from under him for his pains. We see him—in photographs of the time—seated under a tree, heavy-set, full-bearded and scowling, cigar in hand, the brim of his non-descript round hat pulled down on his ears.

In November 1862, General McClellan

was finally relieved of his command by General Burnside. Pinkerton, ever faithful to "Little Mac" and convinced that his client had been shabbily treated, declined to act any longer as the Army's G-2 ("although strongly urged to do so by both President Lincoln and the Secretary of War"). He took on a job investigating claims against the Federal Government. It is gratifying to find Pinkerton writing to Stanton, on 19 April 1865, offering to help in capturing the assassins of Lincoln. "Under the providence of God, in February 1861, I was enabled to save him from the fate he has now met." Stanton's telegraphed reply asked Pinkerton to "look out for Jeff Davis and his companions, and arrest them if possible." But "Major Allen" did not catch Jefferson Davis. Instead, he returned to Chicago and his private practice.

The office that Pinkerton vacated was not filled by Burnside. The Army's secret service was left in floundering disintegration. When, in January 1863, General Joseph Hooker relieved Burnside, there was hardly a scrap of information at Army headquarters on the doing of the Confederates. Hooker knew scarcely more about what was happening just across the Rappahannock than if his foe had been in Patagonia.

Hooker soon remedied this dangerous situation. Three days after taking command he appointed a number of officers to his staff. Among them was a 35-year-old colonel of volunteers, George H. Sharpe, who was assigned as Deputy Provost Marshal and charged with organizing a Bureau of Military Information. Sharpe undertook to set up an intelligence service as an integral part of the Army. It was to be systematically organized and disciplined. He gathered around him a staff of quick-witted men, most of them from the ranks, whose reports on the enemy and the terrain could be trusted. Thereafter, the Army of the Potomac was much better informed.

Colonel Sharpe had brought the newly-formed 120th New York Regiment down into Virginia during the fall of 1862. The regiment was first under fire at Fredericksburg on 13 December, where it was commanded by General Sickles, its division commander. Sharpe, in a report on his regiment's part in the battle, modestly pointed out that "although the operations of this command were not of the most serious nature, the conduct of the officers and men was marked with coolness and propriety..." Sharpe himself would appear to have been an exemplary soldier and a most capable staff officer.

Unlike Pinkerton, Sharpe left behind no memoirs of his service as intelligence officer of the Army of the Potomac. However, the official *Records of the War of the Rebellion* contain several hundred reports rendered to Sharpe by his men, as well as by Sharpe to Hooker, Meade, Grant, and their chiefs of staff. These reports leave unanswered many questions about the organization and functions of the Bureau of Military Information, but they do indicate that it was a business-like staff section, and that it turned up much accurate combat intelligence. Gone are the references to the "salons of aristocratic traitors," to colorful "contrabands," to "Paul Prys" in the guise of British lords. Instead, Sharpe's correspondence deals largely with the drier affairs of interrogating numberless prisoners and deserters. A few samples reflect Colonel Sharpe's activities, and indicate the kind of information he produced.

Here is a message to the Colonel from the young and dashing John Babcock of Sharpe's staff, and a holdover from Pinkerton's days. It was written during the Chancellorsville campaign.

"Am daily making examinations regarding re-enforcements from Richmond. None have arrived, to my belief, in our front.

We have prisoners from about Fredericksburg at all hours of the day, and many taken last evening. None from Hood's, Pickett's, or Ransom's divisions have yet been found. If they are up, they have gone over in your direction or toward Culpeper.... No force between Moss Neck and Guiney's, except very few cavalry."

And a detailed report from Sharpe to Hooker, dated 27 May 1863:

"1. The enemy's line in front of us is much more contracted than during winter.

2. Pickett's division, of six brigades, has come up from Suffolk, and is at Taylorsville, near Hanover Junction....

* * * * * *

4. Ten days ago there was in Richmond only the City Battalion, 2,700 strong, commanded by General Elzey.

5. There are three brigades of cavalry, three miles from Culpeper Courthouse, toward Kelley's Ford. They can at present turn out only 4,700 men for duty, but have many dismounted men, and the horses are being constantly and rapidly recruited by the spring growth of grass...

* * * * * *

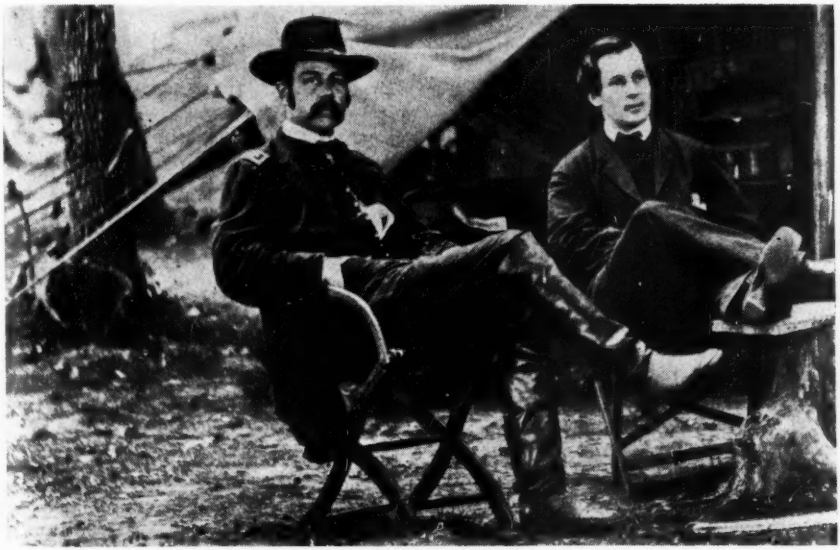
7. Mosby is above Warrenton, with 200 men.

8. The Confederate Army is under marching orders, and an order from General Lee was very lately read to the troops, announcing a campaign of long marches and hard fighting, in a part of the country where they would have no railroad transportation.

9. All the deserters say the idea is very prevalent in the ranks that they are about to move forward upon us, above our right flank."

Gettysburg was but a month away!

It is only fair to point out that the



Colonel George H. Sharpe (on the left) organized the Bureau of Military Information when General Hooker took command of the Army of the Potomac in 1863. On the right is John C. Babcock.

Army's intelligence-collecting agencies improved greatly as the war progressed. In the early days, commanders often stumbled into battle with no more than a foggy idea of the enemy's location, strength, and morale, and with little knowledge of the terrain. The Federal cavalry was very weak and improperly employed. Too often it was dissipated on picket duty and the guarding of slow-moving wagon trains. Accurate maps were rare. Too much reliance was placed on paid civilian spies, and too little on trained military observers and scouts.

But costly experience taught its lessons. In time, the Northern generals learned the importance of thorough cavalry reconnaissance, and it became a prerequisite to every important move. In quality and numbers, the mounted arm improved greatly too; and well before the end, it was more than a match for the Confederate horse. In addition to the regular cavalry, mounted scout battalions—made up of volunteers—were employed for reconnaissance. These troopers were paid from secret service funds. Working in small parties, often disguised in grey uniforms, they became expert at picking up Confederate stragglers.

Lookouts and signallers, atop lofty towers and hills, also came to be used more regularly as a means of getting accurate, up-to-the-minute information. It is said that Lee's invasion of Maryland in 1862 would have come as a complete surprise but for the alertness of a Lieutenant Miner, Signal Corps, whose station was on top of the highest point in Maryland. At times, the signal men succeeded in intercepting important enemy signal messages.

Observation balloons were first used by the Army of the Potomac during the Peninsular Campaign. The Army's earliest aerial observer, T.S.C. Lowe, discovered the evacuation of Yorktown by the Confederates. Thereafter, he made many ascensions over the Confederate lines, and was often a target for their artillery.

We find Major General Daniel Butterfield, Hooker's Chief of Staff, writing in April 1863:

"Lowe (the balloonist) reports up to 9 a.m. that, in consequence of the wind, he is unable to ascend. First opportunity will be improved. Cautioned Sharpe, signal officers, and Lowe to be vigilant and watchful..."

Apparently Sharpe did not direct the signallers and balloonist. But other messages indicate that he worked closely with them. Thus Captain J.S. Hall, signal officer at "F" Signal Station, reports to Sharpe:

"All the camps west of the railroad have been struck save one small one.... Enemy occupy rifle-pits, railroad, and Bowling Green road."

At times, contact with the enemy was too slight to yield the desired information, and it was necessary to prod the reconnaissance elements. A message from Hooker to Brigadier General Pleasanton, Commanding Cavalry, late in June 1863, was quite explicit:

"The Commanding General relies upon you with your cavalry to give him information of where the enemy is, his force, and his movements. You have a sufficient cavalry force to do this. Drive in pickets, if necessary, and get us information. It is better that we should lose men than to be without knowledge of the enemy, as we now seem to be. Captain McEntee, of Colonel Sharpe's department, thoroughly understands the whole organization of the rebel army, and is sent out to joint you.... Leave nothing undone to give the General the fullest information."

McEntee appears to have been an early-day Enemy Order of Battle expert.

Sharpe also had his security problems.

In March 1863, the War Department was asked by Hooker to choke off the stream of inquisitive civilian visitors to the Army. This should be done gradually because "when this army moves, the sudden stoppage of all visitors to this camp would be a preliminary notice thereof." More serious were the indiscretions of newspaper correspondents. On 21 April, Hooker wrote an indignant letter to Stanton. Four days earlier, the Washington *Morning Chronicle* had published verbatim a confidential report by Dr. Letterman, medical director of the Army of the Potomac. "Already," says Hooker, "all the arithmeticians in the army have figured up the strength of sick and well, as shown in the published extract, as belonging to this army. The chief of my secret service department would have willingly paid $1,000 for such information in regard to the enemy at the commencement of his operations, and even now would give that sum for it to verify the statements which he has been at great labor and trouble to collect and systemize..." As Hooker feared, the Confederates were able to add and subtract. For General Lee also had read the *Morning Chronicle*. On 10 May, Lee wrote to the Confederate Secretary of War:

"We are greatly outnumbered by the enemy now. Taking the report of Surgeon Letterman, medical director of General Hooker's army... his aggregate force, by calculation, amounts to more than 159,000 men. I see by the *Herald* of the 7th instant, that Heintzelman, with 30,000 men, had marched to re-enforce him..."

A few days later Hooker told Stanton that unless action were taken against certain offending newspapers he would suppress their circulation in the Army of the Potomac and exclude their correspondents.

Sharpe and his men were kept extremely busy during the Gettysburg campaign, locating and following the elements of Lee's army. Thus, on 20 June, an order went out to Babcock (then in Frederick) to "send persons on to the heights of Stone Mountain, to overlook the valley beyond, and see if the enemy have camps there.... Employ only such persons as can look upon a body of armed men without being frightened out of their senses.... Necessary for me to know if enemy has any considerable number of his forces on the north side of the Potomac..." Within five hours, Hooker had his answer:

"In short, a division of infantry, under General Rodes, and some 1,200 cavalry, under Jenkins, comprise all the forces at or near Williamsport... The main body of Lee's army is not in the vicinity."

The Bureau of Military Information also directed the activities of agents behind the Confederate lines. One of the best was Miss Elizabeth Van Lew, a cultured, middle-aged lady of Richmond and a fanatical abolitionist. Miss Van Lew is said to have established a chain of secret relay stations for speeding information to Sharpe. The old Van Lew mansion in Richmond was the first link in the chain. There, Miss Van Lew gave shelter to Federal agents and escaped prisoners. She also secured considerable clandestine information on her own initiative.

But not all of Sharpe's spies turned in plausible reports. For example, a note from one of his agents in October 1863 predicted that Lee would again invade Maryland and Pennsylvania. Lee was said to have the "largest and finest army he ever had." More accurate was Sharpe's own assessment of Lee's situation. The Confederates, he told Meade's Chief of Staff, had suffered heavy losses, were plagued by deserters, and there was friction between Lee and the Confederate cabinet.

Sharpe's reputation spread westward. In October 1863, General Rosecrans wrote from Chattanooga to General Meade, asking that Sharpe inform Rosecrans

"of rebel movements affecting us here."

General Grant took command of all the Union armies in the spring of 1864. He joined the Army of the Potomac, although immediate command of that Army remained with Meade. By July, Sharpe seems to have been established as intelligence officer with Grant's headquarters at City Point, on the James, and Babcock took over intelligence activities with Meade. At any rate, a special order signed by Grant, on 2 December 1864, appointed Sharpe "Assistant Provost-Marshal-General of the Armies operating against Richmond." Sharpe's reports during the last year of the war—replete with information gleaned from prisoners and deserters, as well as from observers and agents—reflect the growing demoralization of the Confederate Army.

General Horace Porter, Grant's aide-de-camp, testifies that Sharpe "rendered invaluable service." Apparently the "Old Man" was satisfied, for, in December 1864, Sharpe was brevetted Brigadier General of Volunteers—"for meritorious services"—and, three months later, Major General.

At Appomattox, General Sharpe's duty was to receive and take charge of the rolls of the surrendering Confederate Army. On 9 April, he signed the parole for General Lee and his staff. It is recorded that Sharpe purchased a pair of brass candlesticks that had adorned the room in which Lee surrendered. If in later years, tapers ever burned in those candlesticks, General Sharpe may well have reflected that he himself had lighted a candle in the dark for the Army of the Potomac.

National security is a condition which cannot be qualified. We shall either be secure, or we shall be insecure. We cannot have partial security. If we are only half secure, we are not secure at all. We cannot lock the front door and leave the back door ajar.

General Jacob L. Devers

Mobilization Training of Officers and Noncommissioned Officers

Colonel Paul D. Adams, *Infantry*
Instructor, Command and General Staff College

The views expressed by the author of this article are his own, and not those of the Command and General Staff College.—The Editor.

REGARDLESS of the success attained in pre-mobilization procurement and training of officers and noncommissioned officers, future mobilizations will create large demands for personnel of both categories for fillers in new units, for replacement of battle casualties, and to compensate for other attritions. The post-mobilization requirements cannot be properly met unless adequate procurement and training machinery for that purpose is made an integral part of the general mobilization processes.

In World Wars I and II, officer candidate schools accomplished wonders in pursuit of their single missions of producing officers. But in spite of the results attained, and with no intention of minimizing the credit due those institutions and the personnel who operated them, it is believed that many qualified observers will agree that important defects were discernible in the systems employed.

Faulty selection of individuals for enrollment in officer candidate schools constituted one of the important defects that call for correction in the future. In many cases, individuals who were enrolled lacked the essential qualifications as regards education, physical ability and character. Many such persons were eliminated from the courses, but others who managed to complete the courses were commissioned only to be found wanting when faced with the realities and responsibilities of battle leadership or the stress of sustained and arduous labor in other capacities. The cost of failures was high, and in battle it was frequently paid for in terms of life and limb of individuals who were in no way responsible for any part of the failure.

Another weakness in the system employed stemmed from the fact that little was done to continue the training of newly commissioned officers to maintain the high pitch of interest in their military careers that prevailed at the time of their commissioning. As the reserve pools accumulated, in anticipation of the peak requirements arising from battle losses, many new officers found themselves moving aimlessly from one pool to another with no real training available to them, and with no assignment to responsibilities commensurate with their grade awaiting them. It is only human for people to lose interest under such circumstances and only the stronger men among them will undergo such experiences with little or no discernible professional deterioration; others will be so affected by these conditions that their usefulness becomes seriously impaired because they have forgotten what they have been taught and lose interest in their work.

The noncommissioned officer training situation was not what it should have been. Except in cases where technical

qualifications were required to qualify individuals for particular specialities, there was no organized training for noncommissioned officers who were to lead small units into battle and their training was left largely to the "school of experience," in what was commonly known as "on the job training."

"On the job training" has all of the shortcomings that accompany training based on empirical methods. It is sketchy at the best, with underlying principles being rarely more than touched, let alone mastered.

While many organizations, large and small, made intensive efforts to operate noncommissioned officer schools, many circumstances operated to limit the success of these schools. Some of the more common blocks to success were lack of qualified full time instructors, of well conceived programs, and of suitable instructional material. Perhaps most important of all, the student frequently had his energies consumed in unit training rather than having them devoted exclusively to increasing his capacities as a noncommissioned officer. Such limitations to training adds luster to the brilliant records of thousands of men who became fine noncommissioned officers by making the most of their native talents and abilities, but the fact remains that they would have been better leaders had they received the training their important jobs demanded.

In addition to the lack of formalized training for noncommissioned officers, there was also the question of selection, particularly for promotion to the higher grades. The demands of modern battle are such that nothing less than the best obtainable noncommissioned officer material will suffice in the future and promotions must be made accordingly. It is believed that selection of noncommissioned officers should be on the same level of importance as selection of officers.

Leadership, whether it is exercised over large or small groups, requires of the leaders essentially the same characteristics—intelligence, physical endurance and character—the only differences being the degree in which those characteristics are possessed and the experience of the individual in applying them.

Since the basic qualifications of all leaders are much the same it follows that a proper system for producing leaders will provide for training large numbers of selected men for junior leadership positions with a reasonable portion of the best qualified among them being advanced to training that will prepare them for positions of greater responsibility. This objective can be accomplished by three simple steps, (1) select and train large numbers of noncommissioned officers; (2) select the best noncommissioned officers upon completion of the noncommissioned officer training and give them officer candidate training; and (3) continue the training of newly commissioned officers until permanent assignments become available for them.

A command such as the United States Army Officer and Noncommissioned Officer Training Command (Figure 1) should be activated as soon as the need arises for mobilization, and it should be given the following missions in order to accomplish the objectives outlined above:

1. Train approximately 48,000 noncommissioned officers monthly in the duties of noncommissioned officers of the first three grades in their respective arms and services, selecting upon graduation the best 24,000 for advancement to officer candidate schools.

2. Train approximately 24,000 selected noncommissioned officers in officer candidate schools for commissioning as second lieutenants in their respective arms or services.

3. Establish an Officers Advanced Training School where continued training will be given those officers for whom assign-

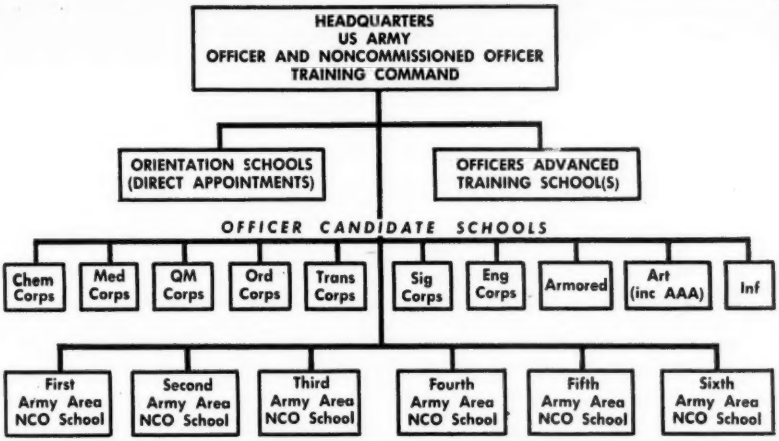


Diagram of a proposed organization of the USA Officer and Noncommissioned Officer Training Command

Figure 1.

ments are not immediately available. (See Figure 2 for allocation of personnel.)

The United States Army Officer and Noncommissioned Officer Training Command would require proper facilities which should be provided at the time the Command is activated. Adequate facilities enabling prompt commencement of operations would include the following:

a. All existing school facilities below the level of the Command and General Staff College, with existing faculties and installations.

b. Six cantonments (one in each Army Area) suitable for housing and providing instructional facilities for a maximum of 24,000 noncommissioned officers arriving in monthly increments of 8,000 together with necessary station complements.

c. One cantonment, capacity 30,000 initially, for use as an Officers Advanced

ALLOCATION OF PERSONNEL TO OFFICER AND NONCOMMISSIONED OFFICER SCHOOLS

Branch	*Total enrollment for each course at six Army Area NCO Schools*	*Total enrollment for each course at each Army Area NCO School*	*Trained NCOs returning to units each month*	*Officer Candidates enrolled in OCS each month*	*Branch share in per cent*
Chemical Corps	480	80	240	240	1
Medical Corps	1,920	320	960	960	4
Quartermaster Corps	1,920	320	960	960	4
Ordnance Department	1,920	320	960	960	4
Transportation Corps	1,920	320	960	960	4
Signal Corps	1,920	320	960	960	4
Engineer Corps	5,760	960	2,880	2,880	12
Armored	5,760	960	2,880	2,880	12
Artillery (including AAA)	8,160	1,360	4,080	4,080	17
Infantry	18,240	3,040	9,120	9,120	38
Totals	48,000	8,000	24,000	24,000	100

Figure 2.

Training School together with necessary station complement. (See Figure 3 for flow of personnel through the training system.)

Courses of three months duration would be required at each school. The courses would be carefully developed during peacetime and made a part of appropriate mobilization plans. Preparation of the various courses of instruction should be accomplished at the service school of the appropriate arm or service under the direction and supervision of Army Ground Forces and the Department of the Army.

The noncommissioned officers courses should be developed at company level with the view of producing noncommissioned officers of maximum usefulness in the training and administration of the company. In general terms, the courses should include thorough qualifications with appropriate weapons; tactics and techniques of the appropriate arm or service; thorough instruction in the principles of leadership; elementary administration and instructional methods.

The officers candidate courses of three months duration, having been preceded by a three month noncommissioned officers course, could be made broader and more thorough than was possible in the past.

Specifically, the officer candidate courses should be set at battalion level and include combat principles, with emphasis on the utilization of fire power, tactics and techniques appropriate to the arms and services; the nature of battle; leadership; administration; instructional methods with limited facilities and equipment applicable to field conditions; and, familiarization with the organization and characteristics of the regiment.

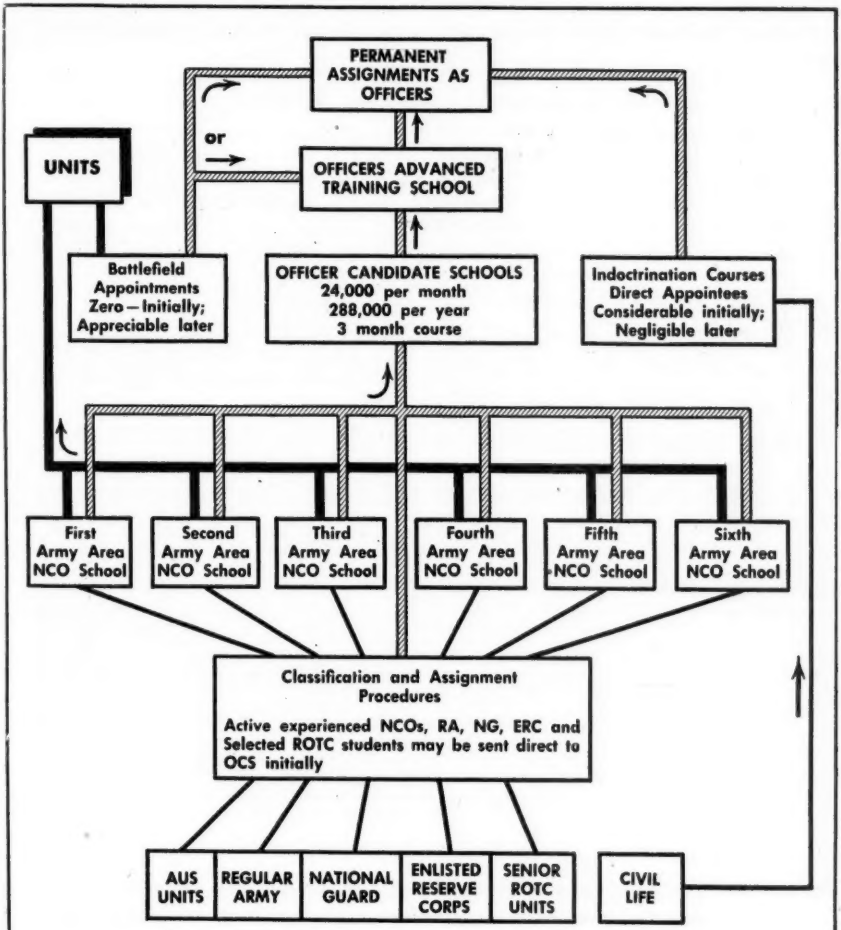
The Advanced Training School for newly commissioned officers awaiting assignment should extend the general military education of the student officers both in scope and depth. The course, while including generally the same subjects taught in the officer candidate schools, should be broken down into brief but thorough sub-courses so that the student will get a feeling of having accomplished something definite, although his stay in the school may be fairly brief.

Selection and enrollment procedures should be carefully worked out at Department of the Army level based on the concept mentioned above to the effect that all leaders possess in greater or lesser degrees the same basic characteristics, and that by successive steps of selection and training the best possible leaders can be provided at all levels.

All selections should be made on an army-wide basis with uniformly high standards uniformly applied. With the exception of direct appointment of specialists, the initial filling of officer candidate school quotas and battlefield appointments, all discussed below, the guiding principle should be that no one will receive a commission without having successfully completed the noncommissioned officers school and the officers candidate school in turn.

Specialists should never be directly commissioned unless the specialty is of such nature that the military establishments cannot qualify men for performance of the specialty. Medical men, outstanding lawyers, ministers, engineers, scientists and highly successful executives are typical of the caliber of men who might be given direct appointments, and they should be given orientation courses to familiarize them with army organization, administration and general methods of transacting business. The orientation courses should be conducted by the United States Army Officer and Noncommissioned Officer Training Command.

Battlefield appointments in accordance with army-wide standards are desirable to provide a means for commissioning deserving individuals who have failed to obtain commissions otherwise but who have unquestionably demonstrated their ability on the battlefield.


PERMANENT ASSIGNMENTS AS OFFICERS
or
UNITS
OFFICERS ADVANCED TRAINING SCHOOL
Battlefield Appointments Zero—Initially; Appreciable later
OFFICER CANDIDATE SCHOOLS 24,000 per month 288,000 per year 3 month course
Indoctrination Courses Direct Appointees Considerable initially; Negligible later
First Army Area NCO School
Second Army Area NCO School
Third Army Area NCO School
Fourth Army Area NCO School
Fifth Army Area NCO School
Sixth Army Area NCO School
Classification and Assignment Procedures
Active experienced NCOs, RA, NG, ERC and Selected ROTC students may be sent direct to OCS initially
AUS UNITS
REGULAR ARMY
NATIONAL GUARD
ENLISTED RESERVE CORPS
SENIOR ROTC UNITS
CIVIL LIFE

Flow of students through training system.

Figure 3.

The initial complements for officer candidate schools may be selected from among the noncommissioned officers of the Regular Army, National Guard, Enlisted Reserve Corps and ROTC students approaching their senior year in senior units. The quality of the personnel thus obtained, combined with their active participation in military training, justifies an exception to the principle of progressive selection and training enunciated above. However, those sources will soon become exhausted and thereafter all enrollments for the officer candidate schools should be selected graduates of the noncommissioned officer schools.

Initial filling of the noncommissioned officer schools would present no problem as this could be accomplished by assigning noncommissioned officers of limited experience in noncommissioned grades, or those whose ratings in the selective processes fail to justify immediate enrollment for officer candidate training. These men would have an opportunity to obtain commissions if their work in the noncommissioned officers school justified their advancement.

The system of officer and noncommissioned officer training outlined herein offers several distinct advantages to the service over systems previously employed. Some of the more important advantages are that it:

1. Selects the best men available for advanced training.

2. Emphasizes development of leaders, and serves to advance them to the point where maximum service can be rendered.

3. Leavens the Army with a large percentage of highly trained noncommissioned officers who will contribute materially to raising the general standard of efficiency and prestige of noncommissioned officers.

4. Provides large numbers of trained men rapidly; 216,000 officers and 216,000 highly trained noncommissioned officers in the first twelve months and 288,000 men in each category for each year thereafter.

5. Provides flexibility through variations in enrollment quotas as circumstances dictate.

6. Can be placed in operation rapidly.

7. Makes full use of existing facilities.

In conclusion it may be said that, through a process of successive selections and training of men possessing the basic requirements for leadership, the Army would place in positions of leadership the best men obtainable.

The true philosophy of the maximum war effort of any nation is for it to devote to this purpose as much manpower in the form of soldiers and sailors, and as much supply power in the form of weapons and ammunition as the country can support.

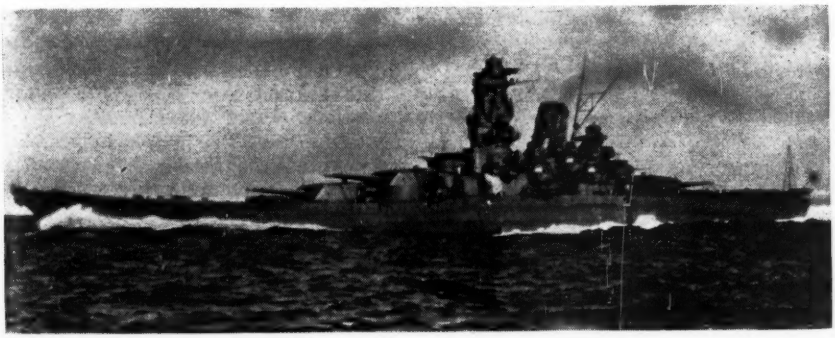
General of the Army George C. Marshall

MILITARY NOTES AROUND THE WORLD

JAPAN

Largest Battleship

The only known photograph of the Japanese battleship *Yamato* was recently found in the possession of a Japanese civilian. With its sister-ship, the *Musashi*, the *Yamato* was the largest battleship ever built, displacing 64,000 tons, or 70,000 tons fully loaded.



The Japanese super-battleship, *Yamato*.

The Japanese battleships were completed in 1942. Their design was so secret that only a few Japanese admirals knew the full details of construction.

The ships were 863 feet long, with nine 18.1-inch guns in three triple turrets, firing shells weighing 3,220 pounds. Side armor was 16 inches thick, and the turret faces 25 inches.

Both battleships were torpedoed the latter part of the war. The *Musashi* was destroyed in the battle for Leyte Gulf, and the *Yamato* in the Japanese Fleet's desperate sortie in April 1945.

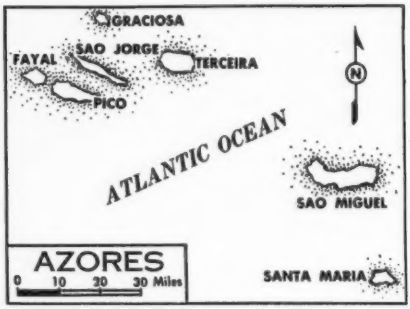
In comparison, the German *Bismarck* and *Tirpitz* displaced about 45,000 tons (52,700 full-load); the United States *Iowa* class displaces 45,000 tons (52,000 full-load); and the British *Vanguard* displaces 42,500 tons (50,000 full-load).—*The Illustrated London News.*

PORTUGAL

Lease of Air Base

An agreement has been reached between Portugal and the United States for the lease by the latter of the Lagens airport in the Azores. In a communication from the American Ambassador in Lisbon to Joao Casiro da Matta, Portuguese Foreign Minister, the appreciation of the United States government for the cooperation of Portugal during and since World War II was expressed.

The Ambassador said that the United States has long recognized and appreciated the wholehearted desire of Portugal



to cooperate and participate in maintaining internation peace and security and the reconstruction of Europe.

It was pointed out that Portugal granted the United States the use of important facilities on Santa Maria Island in the Azores during the war, and this constituted an extremely valuable contribution to the war effort of the United Nations. Since that wartime agreement expired, the United States has continued to receive the full cooperation of Portugal in providing transit facilities at Lagens Airfield in the Azores for United States aircraft serving the American forces of occupation in Germany and Japan.—*The New York Times.*

AUSTRALIA

Permanent Army

A permanent army of 19,000 men is needed for Australia's post-war defense, according to the Vice-Chief of the Australian General Staff. This force, which is now being planned in detail, would be smaller than the regular army maintained before the war, but is expected to be more efficient and capable of immediate expansion.—*Australian News Summary.*

Communications

Because of the increased efficiency of portable wireless equipment the Australian Army has decided to abolish Morse code, except for artillery and signals uses. This decision follows one recently made by the War Office in London.—*Australian News Summary.*

Naval Organization

The last major change in the reorganization of the Australian Naval Squadron to the peacetime level is the disbanding of the 20th Mine Sweeping Flotilla, which has completed the task of clearing mines from the mainland coastal areas and adjacent islands. By the time the first aircraft carrier is taken over in July, the Naval Squadron will be organized as a carrier task force.—*Australian News Summary.*

INDIA

British Withdrawal

The last British unit to leave India was the First Battalion of the Somerset Light Infantry, which embarked at Bombay the last of February. The Somersets arrived in India in 1822 and since that time have taken part in nearly all of India's frontier wars. The departing unit lowered its colors as it marched through the Gateway of India at Bombay, and in turn was saluted by honor guards of the Royal Indian Navy and contingents of the Indian Army.—*The New York Times.*

GREAT BRITAIN

Amphibious Exercises

Armored vehicles in amphibious exercises.

The principles of amphibious operations, learned in World War II, are being taught in Great Britain's Combined Operations School. During exercises recently held at Crowpoint Beach, North Devon, armored vehicles went ashore while an intensive smoke screen was laid along the beach and naval vessels patrolling at sea provided support gun fire. Considerable attention has been given to sealing vehicles for operation through the surf.—*The Sphere*, London.

Naval Construction

Britain has stopped all new naval construction and cut naval appropriations for the fiscal year by more than 154 million dollars. Total naval appropriations for the 1948-1949 period will be 612 million dollars.

The 31 March strength of the Royal Navy was 139,500 officers and men. Cancellation of new construction did not affect completion of vessels already being built, and seven destroyers and seven submarines were to join the fleet by 31 March. More than 27 million dollars is being spent for scientific research and development in the current naval budget.—*The New York Times.*

Pacific Exercise

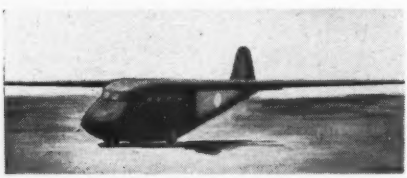
Six RAF Spitfires have carried out a long-distance island-to-island training flight of 4,600 miles from Tengah, Singapore, to Kai Tak, Hong Kong, and back by way of Kuching in Sarawak, Borneo, and Clark Field on Luzon Island.

The Spitfire flight was supported by a Mosquito, a Sunderland flying-boat and two Dakotas, and permission was granted for the aircraft to stay overnight on Luzon where refuelling facilities had been arranged.

A vital factor in the exercise was the provision of accurate weather forecasts and special arrangements were made to relay bulletins all along the route.—*The Aeroplane.*

SWEDEN

Air Force Glider



Swedish Fi-3 Glider.

During World War II, the Swedish Air Forces decided to produce a Swedish-designed transport glider, as a result of which *A.B. Flygindustri* brought out the Fí-3. The glider is a high-wing monoplane with single fin and rudder, fixed undercarriage, and carries twelve troops and a crew of two. Five gliders were built before production was cancelled.—*The Aeroplane Spotter.*

TURKEY

Road Program

Under the Greek-Turkish Aid Act, a five million dollar road program is included in the 100 million dollar grant for Turkey. The United States Public Road Administration assumes the responsibility for the road program. This organization will assign American experts for highway administration, planning, location, design, construction, materials, and maintenance, and the training of Turkish nationals to continue the road program.—*The Military Engineer.*

POLAND

Compulsory Service

A government bill proposed in parliament establishes a youth organization in which membership of all boys and girls up to 20 years of age is compulsory. Military training would be compulsory for boys.—*The New York Times.*

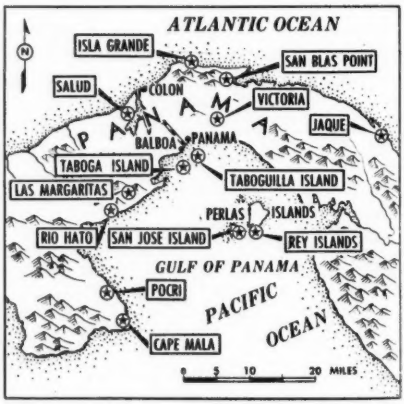
PANAMA

Evacuation of Bases

Evacuation of all defense bases in the Republic of Panama which were used by United States forces during World War II in defense of the vital Panama Canal has been completed.

The last base evacuated, the Rio Hato Air Base, was turned over to Panama on 16 February, with Mario de Diego, Foreign Minister, accepting it for the Panamanian government. At the same time, Panama acquired an estimated five million dollars worth of improvements at the installation.

In December, the National Assembly of Panama rejected the ratification of a defense sites agreement, which would have provided for use by the United States of thirteen bases. Following this, the United States Department of State announced on



Bases evacuated in Panama.

25 December that the withdrawal of United States forces from all bases outside the Canal Zone would be completed "as quickly as possible consistent with the number of personnel and the amount of matériel involved."—*The New York Times.*

GREECE

Air Training

Fifty Royal Hellenic Air Force cadets are being trained at Randolph Air Force Base, San Antonio, Texas, under the provisions of the United States Greek aid program.

The trainees will receive the same training given American aviation cadets, and will fly North American AT-6s (Trainers) P-51 Mustangs, and B-25 Mitchells, Greek-speaking USAF officers are being assigned to the aviation cadet class to assist in training the Greek cadets.

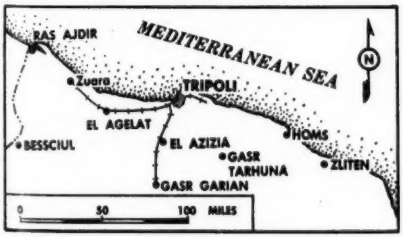
Upon the completion of training in February 1949, the Greeks will be commissioned as flying officers in the Royal Hellenic Air Force and will return to Greece for assignment to units.—Department of the Air Force.

LIBYA

Mellaha Air Base

The reopening early this year of the American air base at Mellaha, near Tripoli in the former Italian colony of Libya, calls attention to an area where American armed forces have served previously.

A hundred and thirty-eight years before the North African campaign of World



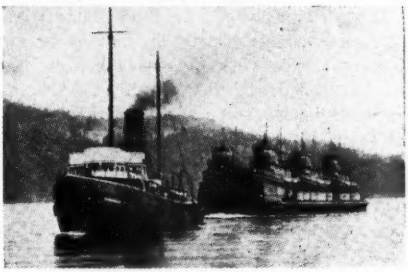
Tripoli.

War II, United States naval vessels saw action in Tripoli harbor, in the operations against the Barbary pirates.

Mellaha is only a short flight from Italy, and about 700 miles from Athens. Libya is under provisional British administration.—*The New York Times.*

ARGENTINA

Delivery of Army Tugs



Tugs enroute to Argentina.

Six 170-foot tugs formerly owned by the United States Army were recently loaded on a barge at Seattle, Washington, for delivery in Buenos Aires. Towed by the tug *Snowhomish*, the barge and its cargo was expected to be six months on the trip, travelling by way of the Panama Canal.—*The Sphere*, London.

Institute of Air Law

By a decree of 24 December 1947, Argentina established a National Institute of Aeronautic Law under the Secretary of Air. One of its main functions is to conduct research and to study all phases of aeronautical law. It will also disseminate and prepare scientific publications in this branch of law and train technicians.—*Republica Argentina Secretaria de Aeronautica.*

CHILE

Antarctic Expedition

The second Chilean expedition to Antarctica, sailing on a transport and corvette, left in December to relieve a naval garrison which had been at Sovereign bay for a year. The new expedition carried food for two years, and is composed of army, navy and air force detachments, representatives of the foreign office, and scientists.—News reports.

UNITED STATES

Field Wire Rocket

Laying lightweight field telephone wire over inaccessible terrain by means of an improved type wire dispenser rocket has been proved practical by the Signal Corps. In emergencies the rockets may be fired without the use of the rocket launcher. The rocket in its original cardboard packing case is fired from a wedge shaped hole dug in the ground, laying out the wire satisfactorily to distances up to 150 yards.

One man equipped with a wire dispenser, a small field telephone and a rocket can establish wire communication over rivers, lakes, ravines, cliffs and other obstacles.

The new lightweight communications

Pick-up Loop. Slip Loop.

wire used in the new dispenser, commonly called Infantry wire, was developed by the Signal Corps Engineering Laboratories to combine the talking range and other characteristics of the heavier field wire and the small size and flexibility of assault wire.

Infantry wire provides a talking range equal to that of field wire but weighs only forty-eight pounds per mile, or about one-third the weight of field wire. It is packaged in one-half mile lengths, and weighs about twenty-eight pounds.—Department of the Army.

Lethal Sound Waves

Sound waves, beyond the range of the human ear, have been found to be lethal when applied to mice and small insects, the Army Signal Corps Engineering Laboratories at Fort Monmouth reports.

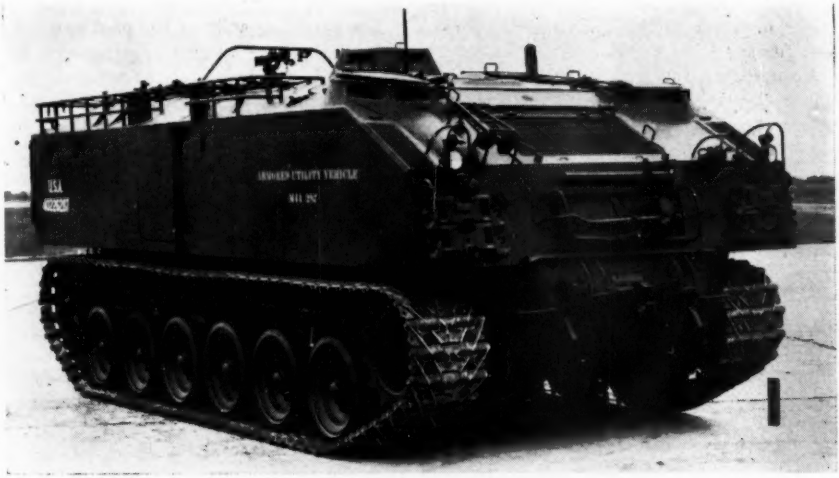
Tests for the Signal Corps at Penn State College, Pennsylvania, have shown that white mice placed in a sound field died one minute after exposure to the ultra-sonic wave. Autopsies showed that the heat produced by the wave was sufficient to cause death. Mice subjected to only 30-second irradiations survived, giving the research experts a time-element barometer.

Mice with fur removed lived about 2½ minutes in the sound field. Measurements showed that the heat did no obvious damage to the organs of the mice. Other experiments were performed on the common roach and other insects, and in each case it was found that the sonic wave heating was sufficient to cause death.

The scientists at work on the supersonics project found it difficult to put objects into the sound field, or to retrieve them, without encountering burned fingers and hands. The men do not expose themselves to the direct beam and it is their practice to wear earplugs. Even then, it has been difficult for them to avoid exposure to the radiated sound. Effects have run from loss of a sense of equilibrium to dizziness.

There are three practical ways to generate supersonic waves. One is the use of an air-jet generator, employing much of the same principle as a whistle. This method is limited to frequencies below 50,000 cycles. Another method employs a magneostrictive effect in certain materials, such as nickel, when used with an electric oscillator. This permits power up to 100,000 cycles. A third, higher-frequency method employs electronic oscillators.—Department of the Army.

New Ordnance Developments



Recent developments in ordnance matériel at the Aberdeen Proving Ground include these vehicles. Above, Armored Utility Vehicle, M44, Experimental No. 2. Below, Truck 8-ton, 6 x 6, T30 (Kenworth).

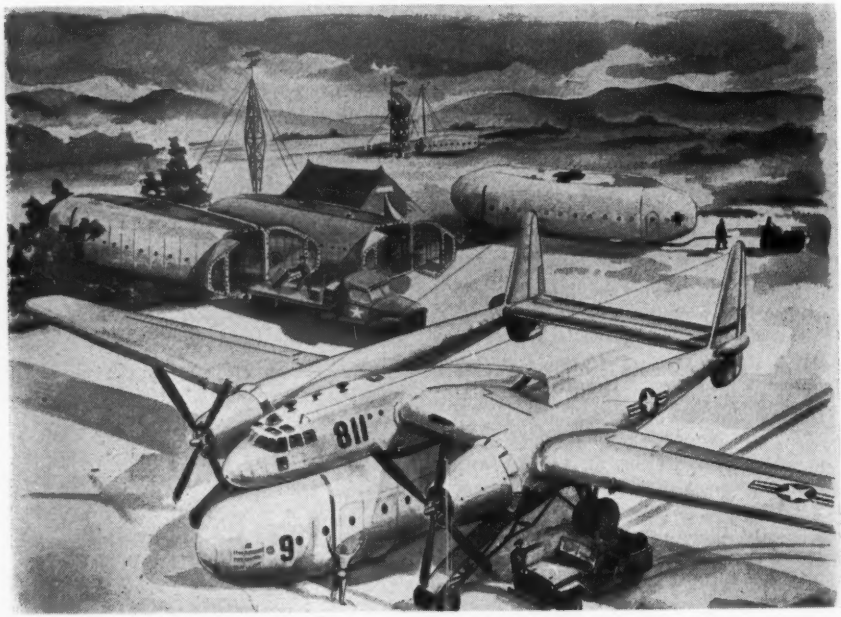
Detachable Fuselage Transport

A detachable fuselage aircraft to be known as the XC-120 pack-plane, is now under order from the Fairchild Corporation for the U.S. Air Force.

Designed on the trailer-truck principle, the pack-plane will closely resemble the Fairchild Packet C-119 in configuration. It will be capable of flying with or without its fuselage.

Like the C-119, the detachable fuselage aircraft will be powered by two Pratt and Whitney Wasp Major engines with a take-off rating of 3,250 horsepower. Preliminary designs call for a pack with a payload capacity of nine tons at a range of 2,000 miles. As a medical unit, the pack will accommodate 36 litter patients and three attendants.

The cargo capacity of the pack can vary according to the specific requirements for which it is designed, but the majority will have a capacity approximating 2,900 cubic feet. Since the packs can be constructed in several different shapes, they present numerous possibilities for the transport of supplies and personnel. Such facilities as communications trailers, statistical control units, portable mess sections, and flying surgical units can be designed within a detachable fuselage.—Department of the Air Force.



The Fairchild XC-120 is a new detachable fuselage transport, capable of flying with or without pack.

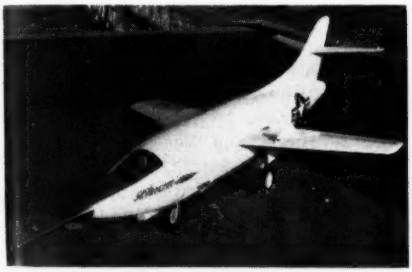
Helicopter Squadron

The first helicopter squadron of the United States Marines (HMX-1) was recently commissioned at the Marine Corps Air Station, Quantico.

The purpose of the squadron is principally experimental. Helicopters to be used by the organization are the four-passenger Sikorsky H03S-1, and the Piasecki HRP-1, which carries a crew of two and eight passengers or a ton of useful load. Squadron personnel includes several Marine pilots who have been participating in the Navy helicopter development squadron at the Naval Air Station, Lakehurst, New Jersey and mechanics trained at Lakehurst and the Sikorsky plant.—*Army and Navy Register.*

Navy "Skyrocket"

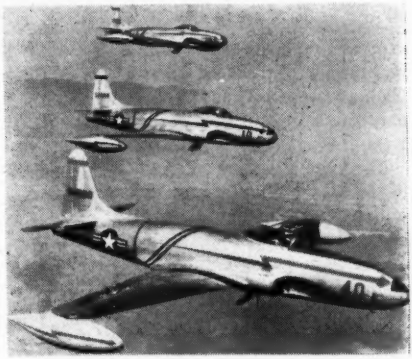
The Navy's new Douglas Skyrocket (D-558-2) is designed to approach even closer to the speed of sound than its predecessor, the speed record holding Skystreak. It differs from the latter mainly in that it is equipped with a rocket engine in addition to the jet engine for increased



Skyrocket (D-558-2).

power, and has swept-back wings and tail assembly. The fuselage of the Skyrocket is made of magnesium alloy, and the wing and tail surfaces of aluminum alloy. For possible greater visibility at a distance, the plane is painted white.—US Navy photo.

Jets Guard Canal Zone



P-80s enroute to Panama.

The 36th Fighter Group of the US Air Force, one of the defense units of the Panama Canal Zone, has completed its conversion from Republic P-47 aircraft to jet-propelled Lockheed P-80 "Shooting Stars." The conversion, which began last summer, included lengthy training of pilots and mechanics in the United States, and the ferrying of the planes from California to the home station at Howard Air Force Base, Balboa, by way of Florida and Jamaica.—Department of the Air Force.

Navy Carrier Jet

Grumman Panther.

The newest Grumman-built carrier fighter in the 600 mph class is the XF9F-2 Panther, which will use both British and American turbo-jet engines.—US Navy photo.

MISCELLANEOUS NOTES

Army Field Forces

Headquarters, Army Ground Forces, has been redesignated Office, Chief, Army Field Forces. The change involves not only the name but also the functions of the organization.

The new office becomes the field operating agency of the Department of the Army within the continental United States. It has general supervision of all matters pertaining to the training of all individuals and units utilized in a field army. These include Army combat, service and administrative units, Organized Reserve Corps units and Reserve Officers' Training Corps units.

The six armies in the United States, formerly commanded by Army Ground Forces, are now directly responsible to the Chief of Staff, United States Army. The Commanding General of each of the Armies and the military District of Washington will command all units and installations within their area except those under the control of a chief of a service or another Department of the Army agency.

The Office, Chief, Army Field Forces, remains at Fort Monroe, Virginia, where the headquarters of Army Ground Forces was located.—Department of the Army.

Photographic Lenses

A photographic lense collection valued at a million dollars was requisitioned by the United States from the Carl Zeiss plant at Jena, Germany, at the close of World War II, and is now being studied at the Army Signal Corps Center at Fort Monmouth.—Army Signal Corps.

Guided Missile

A German-built V-2 rocket has been successfully maneuvered in flight in tests at the White Sands Proving Ground. Signals radioed from the ground activate the gyroscope which steers the rocket.—*Science News Letter.*

Affiliation Program

More than 1,000 units have been created under the Organized Reserve Corps Affiliation Plan through agreements between the Army and various civilian professional, industrial, and commercial organizations throughout the United States.—Department of the Army.

New Fog Generator

A new fast method of generating fog by jet-propelled aircraft has been developed for the Navy.—Associated Press.

Reserve Nurses

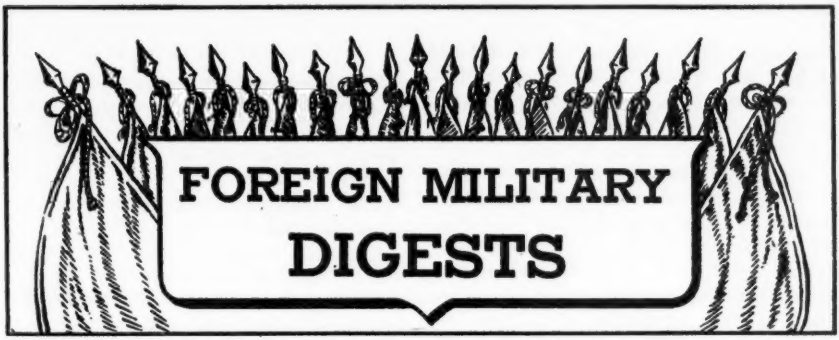
The Army has set a goal of 29,000 nurses to be enrolled in the Army Nurse Corps Section of the Officers' Reserve Corps during 1948.—Department of the Army.

Air Transport Consolidation

The Naval Air Transport Service and the Air Transport Service have been consolidated by the Secretary of Defense into a new organization to be known as the Military Air Transport Service (MATS).

The new service is established under the US Air Force, with a naval officer as Deputy Commander. It will eliminate all cases where the two services duplicated their functions, and will establish, maintain and operate substantially all scheduled air transport required by the Armed Forces and the National Military Establishment, as well as a large proportion of non-scheduled air transport.

The Navy will retain responsibility for the operation of air transport essential to naval operations, where such requirements cannot be met by MATS. Also, the Air Force may maintain, independently of MATS, miscellaneous air transport organic to its service, but it shall not operate any regularly scheduled trunk line service.—*Army Navy Journal.*



Japanese Plan of Conquest

Translated and digested by the MILITARY REVIEW from an article by Etienne Romat in "La Revue Maritime" (France) August 1947.

HISTORIANS of the first phase of the hostilities in the Pacific have contrasted the overwhelming superiority of military power of the Japanese, especially air and naval, with the scanty resources of the British, American and Dutch commands. Interrogation of Japanese chiefs at the end of the war and captured documents, however, have enabled us to obtain a more accurate knowledge of the preparation made by Tokyo naval authorities.

The plan of operations of "Greater Asia," exceeded, in reality, the most optimistic hopes of the Japanese high command. In spite of the sacrifices by the Allies for gaining time, the execution of the "southern" plan was retarded but a single week and the losses of men and matériel were so small that certain Japanese admirals overestimated the military possibilities of their country. The aggression which the Tokyo strategists had long prepared bore in itself the germs of Allied victory.

The Plan of Conquest

Even before 1941, Imperial Headquarters ordered Admiral Yamamoto, commander in chief of the combined fleet, to plan the destruction of the American Pacific fleet, and in cooperation with the army, the occupation of the southern Asiatic territories. Details of the execution of the first operation (Pearl Harbor) were left to the discretion of Admiral Yamamoto.

In the second operation, it was necessary to destroy the local American, British and Dutch forces, and then occupy all the territories within a radius including Burma and Malasia on the west, the East Indies on the south and the Philippines on the east. Contrary to the situation in China where the imperial army was under a single command, the "southern" operation was essentially a combined operation in which the plans of occupation, prepared by the war ministry, were afterwards completed by the navy general staff before being submitted to Imperial Headquarters for authorization.

Elaboration of the "southern" plan was effected with little difficulty between the two arms. The navy made a few additions to the plan of the ground forces; it added Rabaul, the Gilbert archipelago and Wake. The occupation of Kiska and of Attu, in the Aleutians, as well as Midway, was contemplated for a time and then rejected.

The Objectives

In the majority of cases, the principle followed was that the ground forces, supported by its aviation, assumed charge of

operation from the moment it was set down on land by the navy. The role of the latter was, therefore, to insure the transportation of the troops and directly or indirectly support their landing.

The army decided that ten divisions were necessary to invade Malasia and the Philippines simultaneously, and then Borneo, the Celebes, Amboyna, Timor, Bali, Sumatra and Java. In its estimation, the most hazardous operations of the first phase was the occupation of the first region, and the landing in the second.

Against these two objectives it planned to concentrate its maximum forces, leaving to the navy the task of effecting the conquest of points in the Indies and the Western Pacific. In case resistance was encountered in Malasia, the army planned to complete the occupation of the Philippines before beginning new attacks in the Federated States.

The imperial navy expected to encounter air and naval forces of the British based at Singapore, the Dutch in the Indies, and the American Far Eastern Fleet and Air Force in the Philippines.

The Allies not having prepared a common plan of defense for their possessions in the Far East, the Japanese anticipated three separate reactions: The American, which would be principally aerial and which would have as its objective the attack of the Japanese aviation based on Formosa; the British, which would make itself felt, mainly by the action of the Far Eastern fleet; and the Dutch, which was considered as negligible and would probably assume the form of a submarine offensive.

Two basic operations were therefore accorded priority in the southern plan;

(1) Destruction of the line vessels of the Far Eastern Fleet of Singapore.

(2) Surprise air attack on the Philippines airfields with a view to neutralizing American aviation. This operation was to be carried out at any cost even though retarded by bad weather.

Naval Forces in the Line

The Japanese high command had at its disposal strong naval forces for the escort and protection of its convoys. These forces comprised almost all the units not engaged in the Pearl Harbor operation.

The "southern" task force was composed as follows:

a. Direct support force (2d Fleet), which included the 3d Battle Division, the 4th Carrier Division, the 4th Heavy Cruiser Division, and the 3d Destroyer Division.

b. The Philippine force (3d Fleet), which included the 16th Cruiser Division, the 5th Cruiser Division, the 2d Destroyer Flotilla, the 4th Destroyer Flotilla, the 5th Destroyer Flotilla, the 12th Division of hydroplane transports, the 17th Division of mine layers, and the 1st and 2d transport forces, each composed of 30 transports and cargo vessels loaded with ammunition and coastal batteries.

c. The Malasian force (or Southern Expeditionary Force), which included the 7th Cruiser Division (heavy), the 3d Destroyer Flotilla, mine layers, the 9th Transport Force, and the 11th Special Amphibian Force.

d. Submarine forces taken from the 6th Fleet, including the 4th Flotilla, the 5th Flotilla, and the 6th Flotilla.

The submarines (a total of 124 units) had the mission of attacking the British war vessels in the South China Sea, and patrol operations in the Philippine sector. They were used in missions of cooperation with the 2d Fleet and not for the attack of merchant vessels.

e. "Distant" support force (1st Fleet), including the 1st Battle Division, the 2d Battle Division, the 3d Carrier Division, and the 7th Marine Division. This force was to remain in the home waters ready to repulse any attack by the American fleet with the help of the six airplane carriers which had participated in the Pearl Harbor attack.

Japanese Air Forces

The Japanese air forces in the southern plan comprised 350 planes of the 3d and 5th Air Armies based, respectively, in Indo-China and Formosa, which were reinforced by 400 others of the 2d Naval Air Force, making a total of 750 combat and reconnaissance planes. The participation of the naval air force was, therefore, the more important of the two, and this force was charged with the execution of the two preliminary operations which were regarded as essential to the development of the southern plan.

The 2d Air Fleet stationed on Formosa comprised three flotillas on 8 December 1941: the 21st and the 23d charged with the operations in the Philippines theater of operations and the Dutch East Indies; and the 22d, whose role was to operate in Malasia, to reconnoiter the South China Sea and to support the landings in Borneo and Java.

Execution of the Southern Plan

The Malay campaign began with the conquest of two airdromes on the eastern coast—Khota Bahru, on the Siamese frontier, and Singora, a little farther to the north. After this, tactical aviation was able to harass the British troops and rapidly gain air superiority by new conquests, both in Malasia and southern Burma, and effect an aerial blockade of Singapore.

In two hours on 10 December, the 22d Air Flotilla of the navy completed the task of destroying its chief objective. As soon as a submarine signalled that the vessels under Admiral Sir Phillips were under way, the three Japanese air groups based in Saignon received the order to attack. On the morning of the 10th, contact was made and the British vessels were attacked by several waves of nine planes each. These continual attacks resulted in the loss of the two British battleships, fifty miles west of Kuantan. The Japanese formation lost only four of its planes. That was the price paid by the Japanese for obtaining a success which was comparable in results to Pearl Harbor.

Neutralization of American Aviation

The 2d Air Fleet of the Japanese navy had already accomplished its second mission: the destruction or neutralization of the 300 American planes in the Luzon sector.

Rear Admiral Taukara hastened to destroy all of them in the first attack, for he concluded that the Americans, alerted by Pearl Harbor, would hurriedly disperse them in the southern part of the archipelago. For some reason not yet completely explained, American aviation was still concentrated at Clark and Nichols Fields on the morning of 8 December.

These two airdromes were attacked by seventy-two Zeros and 100 Bettys belonging to the 21st and 23d Flotillas, starting from airfields in Formosa. Only a small number of the army's planes participated. The Japanese formations were to have attacked their objectives at dawn, but bad weather delayed the operation until between 1200 and 1300.

Conquest of Airfields

As in Malasia, the Japanese immediately gained air supremacy in the Philippines. As a first consequence, on 10 December, more than fifty Bettys from Formosa, destroyed the Cavite naval base. But by following too literally the directions of the plan, the commander of the 2d Fleet let 200,000 tons of merchant vessels escape from Manila, as well as nearly the entire Asiatic Fleet of Admiral Hart.

Now the Japanese air force was able to support the various local landing operations and take advantage of the air fields which the troops made ready for use. The Japanese had given priority to occupation and provided for the rapid establishment of ground installations carefully planned in advance on the basis of the radius of action of fighter aviation.

As the conquest progressed, the planes of the 2d Fleet, first based on Formosa and Palau, moved toward the south, being relieved in the north, by planes of the 5th Air Army. On 20 December, the 21st Flotilla concentrated at Palau, and then at Davao in January. It afterwards dropped down to Menado where it was reorganized into the 1st Assault force with certain units of the 23d Flotilla. It comprised at that time, sixty-three Bettys, forty-eight Zeros and eighteen hydroplanes. A short time afterwards the migration continued southward to Kendari. The 23d Flotilla stopped first at Formosa (some of its planes were used for bombing Corregidor), then it dropped on down to Borneo, occupying the three airfields of that island. The main part of its fighter planes were transferred to Koepang (Timor) opposite Australia.

The two flotillas encircled Java and prevented the island from receiving reinforcements by way of Australia.

Amphibian Operations

The schedule was as follows: 12 December, attack on Davao and Legaspi from Palau; ten days later, landing at Davao and Luzon in the gulf of Lingayen and the bay of Lamon, from Formosa. Afterwards, from Palau, occupation of Tarakan, Balikpapan, Bandjermassin in Borneo where, on 16 and 19 December, the marine forces had occupied Miri and Kuching. These operations were to be followed by landings in the Celebes, the Moluques and Timor. Two airfields of great strategic importance, Menado and Koepang (Timor), were to be occupied and put in order as rapidly as possible. Consequently, the taking of these was intrusted to the naval airborne forces. Almost the entire schedule of conquest was carried out.

The 3d Fleet, setting out from Japan, divided into two forces which arrived, about 3 December, at Formosa and Palau.

The first left Formosa on the morning of 10 December. It was subdivided into three groups. One effected a landing at Aparri on the northern coast of Luzon, the second at Vigan on the northwest coast, and the third cruised in the waters west of Vigan.

Counterattacks cost the Aparri group a mine-sweeper (sunk), and one other damaged; the Vigan group, the loss of one transport and a submarine chaser.

In view of the Lingayen landing (12 December), the two preceding groups were reinforced by units from Formosa. Altogether, the naval forces used for this operation comprised three 10,000 ton cruisers, twenty destroyers and their flagship, the *Naka*, twenty transports and forty small boats of all types. The only results obtained by American aviation was the slight damage done the cruisers *Ashibara* and *Naka* and the machine-gunning of a few smaller vessels and near hits by bombs.

After the Luzon landings, the 3d Fleet returned for supplies to Formosa, then headed for Davao, which was already occupied. It separated into several groups which reached Jolo (taken on 6 January), Tarakan (11 January) and Menado (11 January). At Davao, one of the cruisers was hit in the bow by a bomb dropped by a B-17 and had to return to Japan for repairs.

On 24 January, the Japanese convoy, which had been anchored off Balikpapan, was surprised and attacked in the night by the 59th Division of destroyers of the Asiatic Fleet. This action, brilliantly executed, the first American naval victory of the war, cost the Japanese at least one destroyer and five transports (sunk).

Invasion of Java

The invasion of Java was preceded by the occupation of Bali, where the Japanese wished to establish an airfield for fighters needed in the air action against Java. The ground forces were landed by two transports escorted by six destroyers. While returning from this operation, on the night of 19 February, the Japanese

flotilla was attacked by the division under Admiral Doorman. The Dutch admiral sent his vessels out in two successive waves into the Strait of Bandoeng, the one coming from Tjilatjap, the other from Soerabaja by way of Bali Strait. This engagement ended in damage to two cruisers and the loss of two Japanese destroyers.

The naval forces assembled for the invasion of Java were as follows:

A direct supporting force of the cruisers and torpedo-boat destroyers of the 3d Fleet which had effected the landings in the Philippines, Borneo and Celebes.

Northwest of Java was part of the force which had supported the invasion of Malasia.

At the eastern extremity of the island, the Lingayen force, reinforced by the 5th Cruiser Division was to take up position. One of its units was the *Ashigara*, which flew the flag of Rear-Admiral Takahashi, commander of the operation as well as commander in chief of the 3d Fleet.

Lastly, there was a long-range supporting force under Rear-Admiral Kondo, commander in chief of the 2d Fleet and tactical commander of the southern operation.

As soon as the Far Eastern Fleet was eliminated, the 2d Fleet, which had been in the vicinity of Saigon, had gone to Formosa for a rest of twenty days. On 25 January, it effected a junction with a force of airplane carriers which had come from Japan after the attack at Pearl Harbor. The combined fleet totaled four battleships, four carriers, eight heavy cruisers

and twenty torpedo-boat destroyers. This concentration, not a part of the original plan, had been decided on after Pearl Harbor, for supporting the Java operation and preventing possible interference by the American Pacific Fleet.

Admiral Kondo's force then headed for Kendari, cruised from 5 to 20 February in the Benda Sea, and on 19 February, sent its carrier-based aviation to bomb Port Darwin, Australia.

As soon as Port Darwin had been neutralized, Admiral Kondo's fleet crossed the Strait of Ombay and, cruised southeast of Christmas Island after having bombed Broome, on the northwest side of Australia.

The only land-based air forces employed were those belonging to the navy. They comprised a total of 400 planes: 300 coming from the Philippines (the 21st and 23d Flotillas) which were charged with the mission of maintaining a watch over the northeastern and eastern portions of Java, and one hundred planes from Saigon (the 22d Flotilla) charged with the mission of supporting the landing operations on the northwest coast.

As a rule, landing operations were to be effected without carrier support. As a precaution, however, carriers were included in the plans in case of emergency. Thus, after the landing on Sumatra, when very few landing fields were available on the island, the small carrier *Ryujo* was ordered to support the troops in the last phase of the occupation of Java.

The troop convoys sailed from Japan, Formosa and the Philippines. Those destined for the Batavia sector were made up at Hainan Island on 18 February. The transports for the Soerabaja and Semerang bridgeheads were assembled at Jolo, before speeding for their destinations across the Strait of Macassar.

At the same time, the units of the 3d Fleet assembled near Macassar and sailed into the Java Sea on 27 February.

Battle of the Java Sea

Admiral Kondo did not expect to meet naval opposition by the Allies. He thought he had neutralized the squadron of the Dutch Admiral Doorman by daily bombing of Soerabaja and the violent attack on 4 February south of Kangean island by the 21st Flotilla based on Kendari.

Aerial reconnaissance over Soerabaja had revealed that the naval units were in this port, but Kondo estimated that the majority of them were not in a condition to be employed. Thus he was surprised when his planes reported that the Doorman force was at sea on 27 February. Convoys coming from Macassar, and their escorting vessels, were ordered to retire north of Baiveau island and await the elimination of the Allied threat. The eastern supporting force (two heavy cruisers) steamed at high speed toward the units which were on guard north of Soerabaja, to reestablish Japanese superiority in cruisers.

The "first engagement," declared a Japanese superior officer, "took place toward the end of the afternoon. Our destroyers attacked with their torpedoes and we thought we had sunk two or three Allied cruisers, but were deceived by the premature explosion of our torpedoes. None of our ships were damaged.

"As dusk was coming on, there occurred another engagement. Two of our torpedo-boat destroyers suffered serious damage and were obliged to head for Macassar. The actual Allied losses were not known but what remained of their squadron withdrew. It was then possible to carry out the invasion of Java according to plan."

By the night of 28 February the Japanese convoys had resumed their course southward and on 1 March set their troops on land.

Liquidation of Allied Units

Two days before, Japanese aviation had won a success which was of decisive influence on subsequent events. On the morn-

ing of 27 February, the airplane carrier *Langley*, which was carrying thirty-two fighter planes (Kittyhawks) to Java, was sighted south of Tjilatjap by reconnaissance aviation, and so badly damaged by the Bettys of the 21st and 22d Flotillas that it had to be scuttled. Like Crete in 1941, Java was destitute of fighter aviation.

The Japanese naval forces maintaining a watch over the approaches of the two entrances to the Java Sea undertook the task of eliminating the vessels which escaped from the battle of 27 February. The cruiser *Exter* which left Soerabaja on the 28th with the destroyers *Pope* (American) and *Encounter* (English), attempted to reach the Sunda Strait by detouring to the north, keeping away from the Java coast. North of Bawean on 1 March, it encountered two Japanese patrol forces which totaled five cruisers and a flotilla of destroyers. Attacked from both sides by the Japanese groups, the English cruiser was hit. It was abandoned and sank shortly afterwards. The *Encounter* suffered the same fate. As for the *Pope*, it took advantage of a slight shower and escaped eastward. It was sighted an hour later by a hydroplane from the cruiser *Ashigara*, struck in the stern by a bomb and finished off by the gun fire of surface vessels.

The end of the Doorman squadron was just as dramatic. The *Houston*, accompanied by the *Perth*, headed westward from Tandjong Priek the evening of 28 February in an attempt to cross the Sunda Strait. During the night it encountered the Japanese force which was covering the fifty transports which were unloading their troops and matériel in Bantam bay. The Japanese covering disposition was as follows: direct support, two flotillas of torpedo-boats led by two light cruisers; indirect support, two heavy cruisers and one destroyer.

The destroyer sighted the Allied cruisers and gave the alert. Entering the bay, the *Houston* and the *Perth* fired on the Japanese transports and then, catching sight of the torpedo boat flotilla to the west, set out in pursuit, heading northwest. The *Fubuki*, which had tracked the Allied units, profited by this change of course and attacked them at long range with torpedoes. The *Houston* was struck, as were also two Japanese transports anchored off the coast. The American vessel, still followed by the *Perth*, continued its course at ten knots an hour, firing all the while on the torpedo boat flotilla which was headed westward. In the meanwhile, the heavy cruisers which had steamed down at a high rate of speed from the north opened fire. Taken under fire from both sides, the Allied ships were finished by torpedoes from the Japanese torpedo boats. On the Japanese side, only one destroyer was hit, two or three transports were sunk and several damaged.

The only Allied units which escaped from the trap of the Java Sea were the submarines, the four American "flush-deckers" *Edwards, Alden, Ford* and *Paul Jones*, which crossed the Bali Strait without opposition and reached Australia. South of Java, the planes of the combined fleet on 1 March, southeast of Christmas Island, sank the American tanker *Pecos*, to which the survivors of the *Langley* had been transferred. Three other American units were lost in this area, the destroyers *Edsel, Pillsbury* and the gunboat *Asheville*.

By 31 March 1942 the limits fixed in the "southern" plan had been reached with minimum losses. On that day, Japanese forces occupied Christmas Island. In the Philippines, the only remaining resistance was an isolated American garrison on Bataan Peninsula. Certain small islands which had been by-passed in the invasion were not occupied until April. The Japanese now began to consolidate themselves in their new empire.

This vast operation had been accomplished by repeated use of the same men

and the same vessels. Many naval officers, particularly those belonging to the 2d Fleet who returned to the homeland for rest while their ships went into dry-dock, believed that the era of conquest was at an end and that the strategy adopted by the naval high command would consist of air-naval raids, afterward remaining in the interior of the conquered area which would be fortified to maximum strength to await the Allied counteroffensive. Lack of natural resources and men, insufficient merchant tonnage for the needs of their conquests, and the modest industrial capacity of Japan, justified and demanded this prudent halt within the shell of their newly conquered area.

In the beginning, Imperial Headquarters was sufficiently inclined to this policy of a halt. In April it conducted an offensive operation in the Indian Ocean in an attempt to surprise and destroy the British Eastern Fleet being restored in Ceylon. But wrongly interpreting the lessons of the campaign and incorrectly informed on the difficulties of supplying the occupation forces, Imperial Headquarters decided to enlarge the original plan. In the south, the naval authorities of Rabaul proposed the occupation of Port Moresby in New Guinea and the Solomon Islands to guarantee the security of their advanced base. Certain members of the naval general staff favored the occupation of the entire Solomon archipelago; others limited themselves to Shortland Island. Some advocated the conquest of the New Hebrides to cut the lines of communication between the United States and Australia. All rallied to the idea of first occupying Port Moresby. The army gave its approval.

The landing force was stopped in the Battle of the Coral Sea on 7 May 1942. The plan was changed and it was decided to cross New Guinea from Buna to Port Moresby, a crossing which the army general staff believed would be very simple in spite of the Owen-Stanley range. This was a gross under-estimation, as the Japanese learned, not only of the natural difficulties but also of the fighting ability of the Australian and American troops.

The same error in estimation was committed at Guadalcanal, where the Japanese contented themselves at first with a weak garrison, and then committed the tactical mistake of sending their air and ground reinforcements piecemeal.

Meanwhile, the high command had decided on two additions to the original plan. In the central Pacific, the naval general staff had studied the conquest of Midway. The army at first opposed the project, but later gave its approval. The disastrous losses for the navy's carrier-based aviation are well known.

Both the army and navy agreed, simultaneously, on the occupation of the Aleutians, particularly Attu and Kiska. Underlying this new conquest was the need for protecting Japan from an American amphibious advance along the chain of the Aleutians, and against the raids of long-range bombers. The occupation of Kiska, Attu and Adak by naval shock troops was to be preceded by a raid carried out by a task force against these bases and against Dutch Harbor.

At one time, Admiral Yamamoto, rendered pessimistic by the Midway defeat, advocated the withdrawal of the Japanese forces to Paramushiro. His advice was ignored and it was almost a year afterward, when, pursued and blocked by the Americans, the garrisons were evacuated to the Kuriles.

Thus, all the expansions accomplished by Japan were doomed, sooner or later, to failure.

The Japanese military chiefs, at least those who survived the capitulation, are unanimous today in admitting that they did not recognize when the time came to cease their military efforts. However, the

plan of conquest resulting in the hostilities in the Pacific may be regarded as a masterpiece of its kind, both in the care which went into its planning and the details of its execution. For this reason, it is not astonishing that the Americans, in their victorious march westward, were the first to adopt its principles.

The Trend of Future Warfare

Digested by the MILITARY REVIEW from an article by Lieutenant General Sir Giffard Martel in the "Journal of the Royal United Service Institution" (Great Britain) August 1947.

THERE is general agreement that the invention of the latest forms of warfare such as the use of atomic bombs or of germ warfare will radically change the whole aspect of British Defense. There are those who argue that they have heard these tales before, and they point to the fact that gas warfare or the use of great armored forces did not materially change the principles of the defense of the Empire.

It must, however, be remembered that there was always some degree of defense against gas, and that complete victory could not be gained at one stroke by its use. The same applied to the use of armored forces. With the latest weapons, however, such as atomic bombs, it will be perfectly possible for one nation to destroy another nation completely in a few hours.

It is possible that every single person hopes that no nation will ever employ these terrible forms of warfare. It seems likely however that nations may well have to equip themselves with these new weapons so as to have the means to carry out the threat of reprisals and thus secure protection against this form of attack. We must therefore endeavor to deduce the kind of warfare that is likely to be used when these weapons are available. Atomic bombs and germ warfare can be carried out by the use of airplanes or by using rockets.

Use of Rockets

It seems likely that rockets will be used in most cases. Every nation will have a number of rocket stations. At each station there will be a deep underground cavern containing the apparatus and the bombs. The rockets will be propelled up through a narrow channel into the air. The direction in which they are launched will be immaterial, for once they reach the air they will be directed by radar or other means on to the enemy industrial areas and main centers of habitation. It will be possible to launch a thousand of these bombs and thus destroy the greater part of the enemy nation. The rocket stations being deep underground will be almost invulnerable, so that if the enemy launches his rockets first his country can still be destroyed by the bombs possessed by the other nation.

Infiltration

Although no large scale attack with these new weapons may ever be launched, there is another form of warfare that is already in use today. This is the use of troops for infiltration purposes and propaganda against a potential enemy. It is obvious to the whole world that Russia has been using this form of warfare in the so-called peace period since the termination of World War II.

The process is a simple one. Russia wants, we will say, some oil concessions from a neighboring country. Russian

troops therefore infiltrate into the country. Sometimes this is done openly. At other times the troops form cells in the forces of that country. They soon obtain a stranglehold over the people. Voting is closely controlled and a secret ballot is quite out of the question. In this way the part of the country that has been "invaded" becomes detached from control by their own people or the whole country may even become a puppet state under complete Russian control. All this is done entirely against the will of the people concerned, but they may well lack the necessary strength or determination to oppose such action.

The counter to these infiltration and propaganda tactics is quite simple. If the British Empire wishes to insure that a nation which borders on the Russian Empire shall retain the independence to which it is entitled, we must possess sufficient strength in light mobile forces of all three Services. If, at the request of the country concerned, soldiers are sent up to the area which is affected, the situation can usually be restored. The people were not prepared to stand alone against the Russian infiltration, but as soon as British troops arrive, they rally to the cause and the Russian tactics are nullified.

There have been several instances in which the arrival of British troops has enabled a country or a part of a country to retain its independence in this way. This is a form of military policing which has long been one of the main duties of all three Services in the British Empire.

It may be argued that such action is merely the prelude to war. It must, however, be remembered that a nation, such as Russia, may well be prepared to gain her objects by methods of infiltration, but would certainly not be prepared to go to war to attain her ends. Russia has at present great internal problems and would certainly not be prepared to launch into another great war, quite apart from the fact that she is well behind in the development of modern weapons such as those making use of atomic energy.

Two Roles

It is therefore clear that there are two definite and distinct roles which our forces must be prepared to fill. First comes the development and possession of the means of launching atom bombs or germ warfare from underground stations on to the industrial areas and centers of habitation of an enemy country. This will only require small numbers of men but they will have to be long-service.

Secondly, we must have the police forces which we have always needed to meet our many commitments all over the world. These must be in considerable strength. It is men that count more than atom bombs for the purpose of stopping infiltration tactics. Also the troops must be first-class men and highly trained.

It will be asserted by many people that there is a third role for our fighting forces. This is to provide the nucleus of a military force of the type which would be used if a great war arose at the present time and before anyone is ready to wage atomic warfare. The Army would have to include all the heavy weapons, such as guns and heavy tanks and the inevitably large maintenance units which they require, also all the training establishments for this type of warfare and the schools and colleges for instructional purposes.

A large reserve of trained men is essential for this type of war for mobilization, hence the Services have to use a large proportion of short-service men and conscripts to produce this reserve. This short service means that very large training establishments must be maintained to train relays of men, compared to the small task of training men when they remain many years with the colors. We therefore see

at once that the maintenance of the nucleus of a present-day large manpower military force is a formidable affair using up a large amount of manpower and financial cost.

A Compromise

What course have we so far taken over this vital and intricate matter? We have accepted a compromise. We are attempting to maintain this nucleus, but our plans for the rapid mobilization of military forces of the present-day type are handicapped at every turn by lack of manpower and finance. For the same reason our military forces abroad are far below what is needed to carry out the duties to meet our commitments in connection with military policing in various parts of our Empire. If we concentrate on the latter role we could have first class troops ready to carry out these duties and stop infiltration tactics and retreating from so many parts of our Empire.

Of course, the ideal would be to have these troops which are needed in considerable strength and, in addition, to have the nucleus of present-day forces on which to mobilize for a present-day great war. This would mean a great increase in our demands on manpower and finance and would be ruled out at once. Are we wise, therefore, in accepting a compromise over this matter or should we take a risk and drop the nucleus for great war forces and concentrate on those vital policing forces?

What risk would this entail? Is there any real risk of another great war in the next five to ten years? It is difficult to see how such a war would come about. It is perfectly possible to reason that at some later stage tension will arise and that the risk of a great war will return. But surely no one will at that stage start to mobilize a whole nation and raise hugh forces including hundreds of divisions in the army when the new weapons using atomic energy are there at hand. There are those who argue that "normal" forces will be needed at that stage in addition to atomic forces. They point out, for instance, that they will be needed to seize some territory on which to establish rocket bases, etc. It seems more likely, however, that by that time distances will be of little importance.

On the other hand the risk in not maintaining suitable police forces for the every day defense of many parts of our Empire is very real. What a sigh of relief would arise from all our commanders overseas if they heard that they were to be provided with considerable forces of long-service and highly trained men. The forces would have to be very mobile, light, and simple. The Army would use light armor and mobility more than heavy guns.

Clash of Concepts

We have now come to the parting of the ways. Are we to try and continue to maintain a nucleus of the last war type of army and at the same time try to improve matters so that our commanders abroad may have better police forces to deal with their many commitments, or should we definitely accept the risk that we will be unprepared to raise a large manpower army of the last war type during the next few years in exchange for the ability of having a really good army abroad to carry out these police duties?

The latter course would mean that we would drop conscription and turn to higher pay and more amenities to attract volunteers. Many people take the view that the present time is not the moment for taking such steps in dealing with our manpower problems. At the same time it is well to examine the facts as they stand today.

Conscription is entirely foreign to our feelings and tradition and is only needed to enable us to mobilize a large manpower army in the event of another great war. But now the point will be raised that we shall not be able to obtain the volunteers

for the long-service regular forces to carry out the police duties. Of course, we would have to pay them far more highly. It is probable that the same regulars could be used to man the rocket stations at home, thereby providing some degree of home service, but we would, of course, have to build far more married quarters for those on foreign stations. The saving effected in training establishments by using long-service men is, however, so great that these expenses and a high rate of pay could certainly be met. A further saving would be effected by the increased efficiency of long-service men. If an officer is given a duty and asked if he will have five long-service men or ten conscripts to carry out the task he will certainly choose the former. This will result in a considerable saving in manpower.

When men found that they could lead an interesting and exciting life abroad and have a well paid career for their lifetime, a pension when they left the Services, and married quarters for their families, they would certainly join up as volunteers.

It would appear to be definitely possible to raise a very fine long-service army from voluntary enlistment to carry out our police duties abroad, and in the future the same personnel might well man the new types of weapons of war at home and abroad which are bound to materialize in the next few years and for which no large manpower army will be needed.

Imperial Defense

However, it would be well to see to what extent these proposals are affected by the two main principles for our Imperial Defense.

The first principle is that each part of our Empire must be responsible for its own local defense. It must, however, be remembered that the minimum possible force must be used for local defense so as to leave the maximum forces available for concentration at vital points to carry out the main plan.

The second principle is that our main air and maritime communications must remain secure. This is the most important duty of the fighting Services. The whole existence of our Empire depends on these communications. Moreover, when we were considering the first principle it became clear that the ultimate security of a portion of our Empire might depend on the arrival of reserves, and this in turn depends on these communications.

Reserves of these light forces situated at suitable centers such as the Middle East will naturally be needed to support local troops when the necessity arises. In the past such forces have been supplied mainly by Great Britain, but it is now clear that the Dominions will have to take a larger share in this work. It is, therefore, more essential than ever that all the forces in the Empire should be organized and trained on similar lines, so that they can cooperate completely and easily.

Rocket stations will no doubt be established in various parts of the Empire for use if the necessity should arise in a great war, but it seems likely that the police duties may play the most important part in our Imperial Defense in the future. It may be that these police duties will eventually be taken over by some international body, but our security for a long time ahead will depend on the efficiency and strength of our own forces.

It is, therefore, for consideration whether we would not do better to depend on long-term regular personnel for all our fighting Services and whether this might not result in a saving of manpower and financial expenditure combined with an increase of security in Imperial Defense.

Soviet Views on German Armor

Translated and digested by the MILITARY REVIEW from an article in "Kungl. Krigsvetenskaps-Akademiens Handlingar och Tidskrift" (Sweden) No 8, 1947.

AN article by Lieutenant General A. Stromberg, Russian Armored Forces of the Guard, entitled "The Collapse of the German Armored Force Theory," appears in the 12 September 1947 issue of *Krasnaia Zvezda.*

Stromberg states that the Germans in World War I neglected the tank, and that when its value became evident they directed their efforts toward antitank action. Only toward the end of the war were they able to engage tanks of their own construction. However, these were very unsuccessful and very limited in numbers.

When the Nazis began the restoration of German military power, great efforts were immediately begun to overcome the deficiency in armor. *Blitzkrieg* warfare was adopted and used as a pattern in developing the armored arm. Stromberg says that the Germans set out to adapt the theories of Clausewitz to modern conditions—concentration of force, and rapid operations.

Stromberg cites Eimannsberger as the first proponent of the *Blitzkrieg,* in his book "Der Blitzkrieg," in 1934.

Blitz warfare, Stromberg states, originated in the traditionally adventurous principles of German strategy. He quotes Eimannsberger as saying: "The increased effectiveness of this arm (armor) takes us back to the type of combat of earlier times....The fact that combat has again assumed its earlier character is, again, the result of the employment of old combat methods."

Stromberg admits that German armored strategy included a number of correct principles which were also observed in Soviet strategy, but the Germans bound themselves down by including some antiquated principles. German armored strategy underestimated the power of the artillery, possibly for the reason that the German artillery during World War I did not come up to German expectations. But this was due to the fact that artillery was not able, as were the tanks, to maneuver rapidly.

German strategy underestimated the infantry, which was no longer looked on as the principal arm, but at first was assigned only the subordinate role of an occupational force.

German strategy overrated the tank. Indeed, armor was raised to a position as chief arm of the ground forces, the one which would be able to accomplish all missions assigned to it and quickly obtain victory.

The importance of cooperation between different types of arms was underestimated by the Germans, and as a result the infantry did not maintain sufficiently close contact with the armored arm and was not able to take advantage of the progress made by the armored forces.

The Germans also overestimated the importance of the conquest of terrain by armored formations, and completely underestimated the importance of liquidating hostile fighting forces.

Still more serious, according to this Soviet viewpoint, was the German overestimation of their own strength and underestimation of their enemy. This resulted in stereotyped training which, in turn, resulted in loss of initiative.

The easily won advances in Poland and France were used by the Nazis to create the myth that the German army could not be beaten.

Stromberg concedes that the Germans, at

the beginning of the Russian campaign, had some success because of their battle training and numerical superiority. But the objective of their *Blitzkrieg* methods, the encirclement and destruction of the enemy combat forces, could not be achieved.

The Germans did not keep abreast of developments in armored equipment. They had told themselves that there would be no need of developing new types of tanks as the war would be over in a few months. Not until this was disproved did they begin to create new and more powerful types. But their efforts did not overcome the lead which Soviet armor had over them. The Russian tank answered all the requirements of modern warfare: it possessed adequate armor, great fire power, speed and maneuverability. The Soviet army, the writer claims, was the only army in possession of wholly modern equipment at the time of the outbreak of war. Soviet inferiority in quantity was overcome by 1943.

The fact that Germany lost two wars in the last thirty years is not the result of chance, Stromberg says. Rather, it is due to the fact that the German doctrine of war has not been able to stand the test.

The lessons of World War II, of importance to the Soviet army, are that armored forces, when correctly employed in accordance with flexible tactics, constituted a valuable and powerful means of modern combat. Above all was the skillful cooperation between Russian armor and the other arms. The armored arm played the principal role. The German theory of war and the German theory of employing armored force suffered a decisive defeat.

A security force for the future must rely for its effectiveness on the instant ability of its regular arms to strike swiftly and decisively at the enemy's heart. If aerial weapons are to be employed in sustained attack, we shall have to deny to the enemy those bases of value to him. And we shall have to seize and defend those bases of strategic importance to us. At the same time, we must have the trained manpower reserves to defend our own country, to mobilize a counterattacking force against airborne or seaborne invasion, to police and reorganize those industrial centers subjected to initial attack.

General Omar N. Bradley

The Liberation of Belgrade

Translated and digested by the MILITARY REVIEW from an article by General L. M. Chassin in "L'Armée Française" (France) October 1947.

THE operations which resulted in the liberation of Belgrade on 20 October 1944 by the troops of Marshals Tito and Tolbukine show what results can be obtained by a large army trained in guerrilla methods, when such an army is aided by a force provided with artillery and armor.

General Situation

The general situation on the eastern front at the end of July, 1944, was as follows:

After a series of operations which had carried it more than 500 kilometers since 15 January 1944, the Red Army arrived at the approaches to East Prussia and the Vistula, where it was obliged to halt momentarily to regroup and accumulate ammunition and weapons.

In the southern sector the front had become stabilized in Rumania by 20 May before Kichinev and Jassy.

Marshal Stalin now undertook a formidable turning movement in the southern sector to free the Balkans and to attack the *Reich* by the southeastern gateway of Budapest and Vienna.

This operation began on 19 August with the maneuver of Marshals Malinovsky and Tolbukine, who broke through the German front, captured Jassy, liberated Rumania, and reached the Bulgarian frontier on 1 September. While Malinovsky penetrated into Hungary south of the Carpathians, Tolbukine entered Bulgaria and occupied Sofia on 11 September. By the 12th, Tolbukine's advanced units reached the Corinbrod area near the Jugoslav frontier where they met the first formations under Tito. The Jugoslav campaign was now to begin.

Situation in Jugoslavia

Up until 1944, the Jugoslav Army of Liberation had to content themselves with harassing the German occupation forces in the Balkans. After the German blitz campaign which defeated Jugoslavia, resistance began to be organized as early as June 1941. By July, Jugoslav partisans were gaining their first successes, arousing the population in a part of former Serbia and in all of Montenegro, where nearly all the cities were occupied and more than 6,000 Italian prisoners taken.

From October 1941 on the partisans never ceased to be a menace to the Germans. The Allies soon began to provide the Jugoslavs with supplies by air and sent official missions. By 1942 Marshal Tito was recognized as chief of the Army of Liberation.

From 1942 to 1944 Tito employed guerrilla tactics. Avoiding pitched battles with the Germans, the partisans employed ambushes, surprise attacks and rapid thrusts, followed by retreat into the forests and mountains. The transportation of supplies to the German forces became extremely hazardous, and the Germans were required to keep several divisions operating against the partisans.

The partisans rapidly grew in numbers until they could be formed into regular units with definite commanders. The first brigade was created in 1942, after the first officers' schools had been opened. The Jugoslav Army of Liberation rapidly grew in strength, and in June 1944 the British government definitely withdrew its support of Mihailovitch's *Chetniks* and gave all its assistance to Tito's partisans.

In July 1944 the partisans carried on an active campaign of sabotage against German communication lines. The main partisan forces were in Croatia, around Zagreb and Lubliana, along the Dalmatian coast, around Split and Zara, in Bosnia, around Yace where Tito had his headquarters, in Herzegovina and in Montenegro. East of the Belgrade-Salonika railway

line, strongly defended by the Germans, a few *maquis* held the Timok mountains between the Morava river and the Danube.

When the Russian armies entered Bulgaria and Hungary, the German Balkan forces, in two army groups, comprised twenty-eight divisions, or more than 400,000 men. General Loehr had eight divisions in Greece, and Marshal von Weichs at Belgrade had fourteen divisions. Of the latter, three were in Serbia and Albania, five on the Adriatic coast between Cettara and Susak, two on the Zagreb-Belgrade-Skoplje railway line, and four engaged in operations against the partisans. In addition, the Germans had six divisions occupying Rumania and Bulgaria, as well as twenty-five Rumanian, twenty-five Bulgarian, and fifteen Hungarian divisions. Altogether ninety Axis divisions were defending the southern gateway to Germany. At first the Germans expected a Russian drive toward the Aegean Sea, and were completely surprised when Tolbukine concentrated his forces on the Bulgarian frontier Turnu-Severin and Sofia, for an attack on Belgrade. The Germans then brought three divisions from Greece and two from Albania to protect the frontier. To prevent this concentration, Allied air forces redoubled their attacks on the main railway lines, and Marshal Tito decided to change tactics.

Marshal Tito's Plan

The majority of the partisan forces at first had been concentrated in the mountains of Bosnia and Herzegovina and were supplied through the ports of the Dalmatian coast. The force east of the Morava was small because Marshal Tito desired to maintain the main body of his forces in the western part of Jugoslavia. The development of Allied operations in Italy gave hopes of a junction with the forces of General Maitland-Wilson in the Istria area, while on the east the Russians were nearly 1,000 kilometers away. The possibility of an Allied landing on the Dalmatian coast was also an important consideration. During the summer of 1944, however, the general strategic outlook suddenly changed. The Anglo-Saxon landings occurred in France; in Italy, the Allies were not able to force the Gothic line, and a stabilized front was established between Pisa and Ravana, and the Russians inflicted a crushing defeat on the enemy in Rumania and were swiftly bearing down on Jugoslavia.

These events determined Marshal Tito's new strategy:

(a) The transfer of the main portion of his forces toward the east to meet the Russians and to reinforce as much as possible the *maquis* of eastern Serbia.

(b) The abandonment of guerrilla action, and the formation of divisions and army corps for normal military action.

(c) Assist the Russians in breaking the backbone of German power in the Balkans along the line: Belgrade—Nich—Skoplje—Salonika by seizing the Axis stronghold at Belgrade.

German Defense

The Germans, however, were expecting an eruption of Jugoslav forces into Serbia. Therefore, although they had established a weak barrier on the Bulgarian frontier against the Soviet forces, they concentrated defense forces, facing westward, along the general line: Drina—Western Morava—Ibar.

As soon as they had located the concentrations of partisans with the help of the *Luftwaffe*, the Germans decided to assume the offensive.

By the end of July 1944 Tito's forces were disposed as follows: one group of two divisions in northern Bosnia between Zwornik and Vlasenica, west of the Drina river; in the center between Chavnik and Plevlje, three divisions; on the right, on the Montenegro frontier, three divisions.

Tito's plan was to bring the mass of eight divisions up to a line between Tser and Rudnik mountains, ready to move out into the Chumadia plain and jointly attack Belgrade from the south with the

Russian armor under Tolbukine. To do this it was necessary that the right wing advance 140 kilometers over precipitous mountains which were without roads or railways and infested by German troops or collaborators.

Concentration of the Jugoslav forces had scarcely been accomplished when the Germans attacked. In the south, in mid-July, the Skanderberg S.S. Division attacked westward from Tetch. But the Jugoslav right wing group counterattacked furiously, cutting the Nazi division to pieces. Moving northward, the Jugoslavs effected a junction near the Ibar river with the Serbian guerrilla forces which had been newly formed into a corps, thus completing the first part of the maneuver.

In the center, the Germans attacked simultaneously from two directions: from the Ibar westward (1st Mountain Division), and from Sarajevo southeastward (Prince Eugene Division). In a skillful feint, the partisans of the II Montenegrin Corps succeeded in drawing the two German divisions in the direction of the formidable Durmitov mountains. The remainder of the central group (I and XII Corps), broke through the defense of the Croatian forces under Neditch, pushed rapidly northward, and succeeded in establishing themselves on the line: Tara Planina Mountain—Zlatibor, in position to effect their second bound.

The central group was the first to attack late in August in the direction: Uzice—Valjevo. Its mission was to attract the main body of the enemy, to facilitate the operations of the wing groups which had to effect the difficult crossings of the Drina and Western Morava river.

Although the central groups opposed the main body of the German forces, it succeeded in forcing its way northeastward and in seizing possession of Uzice and Valjevo, and then establishing itself between Tser and Rudnik mountains in the Belgrade plain.

The wing groups, after hard fighting, succeeded in aligning themselves with the central group, the west group seizing Tser mountain and the right group pushing on as far as Arandjelovatz and taking historic Rudnik mountain, after having defeated the Prince Eugene Division.

By the end of September everything was ready for the final battle, and the advance of the Red armies toward the Danube sounded the death knell of the German defense. Marshal Tito now reorganized his forces, forming two corps. I Corps, under General Daptchevitch, was charged with the main action, and II Corps, under General Popovitch, covered the right flank.

In eastern Serbia, the XIV Serbian Corps had been strongly reinforced, and on 15 September it made junction on the Danube with advance Russian elements.

The Belgrade Operation

The Germans organized as well as they were able the defense of northern Serbia and Belgrade. They dispatched three divisions to the Bulgarian frontier, and massed XXIV Corps on the advanced line of defense: Kruchevats—Arandjelovats.

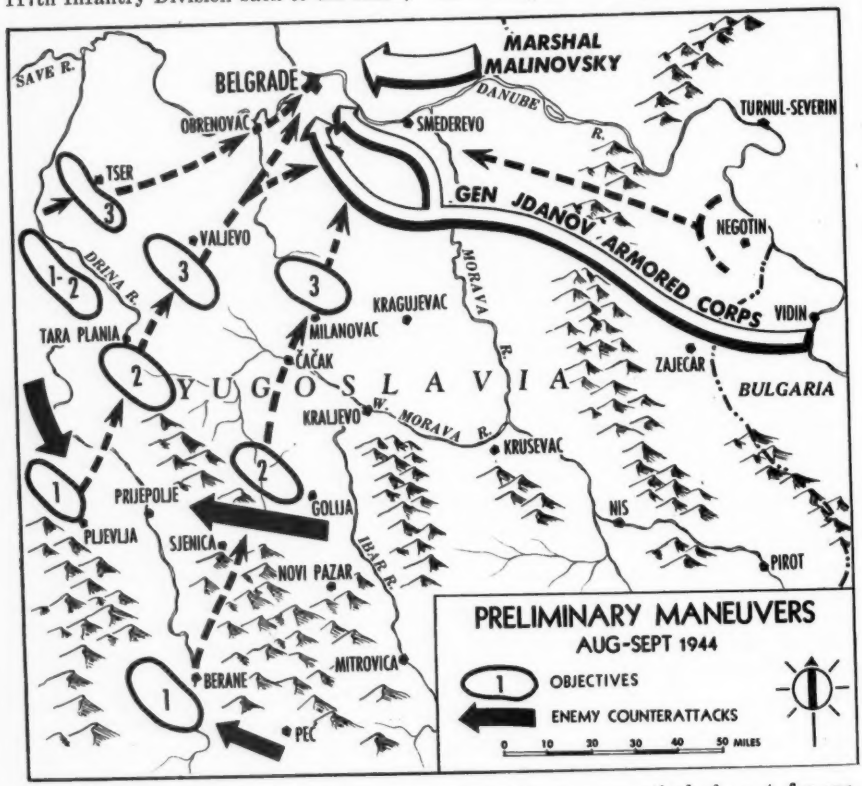
On the main line of defense: Obrenovats—Smeredevo, they located strong forces composed of all the artillery, infantry, antiaircraft defense and police they were able to assemble.

Early in October, Marshal Tito ordered General Daptchevitch to attack Belgrade. Starting from the Tser-Rudnik area, the Jugoslav troops quickly reached the line: Obrenovats—Arandjelovats, where they joined battle with the enemy forces.

Meanwhile on the east, the Red Army had reached the Danube. On 7 October, while Marshal Malinovsky was attacking north of the river, Marshal Tolbukine decided to send General Jdanov's armored corps to reinforce Tito. The Russian armored corps crossed the river without difficulty at Vidin, the German forces be-

ing covered by the XIV Serbian Corps under Timok.

With the cooperation of the partisans, the Russian armored corps crushed the Nazi defense in the Zajcar area, throwing the 1st Mountain Division and the 117th Infantry Division back to the north,



and pushing the reorganized Prince Eugene Division to the south. A penetration having been made, Jdanov bore down on Belgrade through the valley of the Mlava, and on the 10th reached Velika-Plana, important communication center on the Morava river where he established contact with the right wing of I Jugoslav Corps.

The attack then was directed on the defenses of the city. Conceding that Red artillery and Red armor played the most important role, nevertheless the Jugoslav units gave valuable assistance, especially in street fighting and in attacking and mopping up centers of resistance. It was an example of cooperation between a guerrilla army, particularly apt for maneuver but weakly armed, and a modern armored force well provided with heavy weapons.

The defense of the city of Belgrade consisted of three successive lines of resistance. The first was abreast of Avala, anchored on the Danube and making contact with the defenses of Obrenovats and Smeredevo. The second was formed by the

fortifications of the city. The third made use of all the principal structures of the city. Under these conditions, it was impossible to encircle Belgrade. Tito decided, therefore, to seize possession as quickly as possible of the two principal bridges over the Save river to prevent the Germans from crossing to the left bank and retreating to Zemun, which they had likewise organized for defense.

The attack began 14 October. Fighting was extremely violent. Meanwhile the German 117th Infantry and 1st Mountain Divisions tried to join the defenders of Belgrade by working their way along the Danube. This attempt was broken up by the Russo-Jugoslav forces, and the Germans, thrown back to the south, then attempted to reach Obrenovats and fall back to the north of the Save river. They were encircled on 19 October in the village of Vrtchin by elements of the Jugoslav 28th and 21st Infantry Divisions and 15,000 prisoners were taken.

On 20 October, after a general attack, the Russian tanks, preceded by the Jugoslav divisions of the I and XII Corps, seized possession of Belgrade, crossed the Save, and pursued the retreating Germans on the Srem plain. Thirty-thousand Nazis were killed or taken prisoner. A considerable quantity of supplies fell into the hands of Marshal Tito.

The capture of Belgrade forced the German divisions in the Morava sector (Kragujevatz-Yagodina) to change their retreat plan and threw them westward into the mountainous Ibar region, where they organized a precarious defense.

Tolbukine's Army having passed to the north of the Danube, the Jugoslav forces liberated all of western Serbia, and now well supplied with food, ammunition and heavy weapons, they succeeded in establishing a real front on the general line: Ibar—West Morava—Drina—Bosut.

The Germans now found themselves obliged to fight on two fronts. On the east they were opposed by the Army of Liberation formed into a normal Army corps; on the west, they faced guerrilla forces. The retreat of the Nazi forces coming up from Greece was rendered extremely difficult and the losses suffered were severe.

Significance of Belgrade

From the standpoint of general strategy, the capture of Belgrade was of prime importance.

First, it forced the Germans to completely evacuate Greece and Albania and the majority of the islands of the Aegean Sea. The 15,000 men left in northwest Crete were sacrificed. As a result of this liberation, the Mediterranean was completely freed of the danger of submarine and air attacks, and maritime navigation was able to dispense with air protection, which freed a considerable portion of Allied aviation for other tasks.

Second, it prevented the Germans from carrying out their favorite maneuver of counterattacking an enemy's flank. If von Weich's army had been able to hold the Danube from Belgrade to the Iron Gates it would have been in a favorable position to turn the left wing of Tolbukine's army by pushing northward toward Temesvar. The taking of Belgrade, by re-establishing the general line of the front, prevented any operation of this sort, and as a result permitted Malinovsky and Tolbukine to push forward without danger.

From the Jugoslav viewpoint, this operation was a veritable revolution. Up to that time Tito's forces had been isolated in the mountains, with no regular lines of communication and without any regularly organized rear areas. They were dependent entirely on supplies by parachute or rare supplies of weapons by way of the Dalmatian coast. Their situation prevented them from organizing, opening schools and factories, and governing the country. Hence, the tactical principle of the partisans had been to disperse to the

maximum, to avoid frontal combat with superior forces, and to retire quickly into their mountain hideouts.

From that time on everything was changed. Creation of a stable front gave the country a regular government, and permitted mobilization of its resources. This made it possible to create and train large units. It permitted the rear to keep the front supplied with weapons, ammunition, and supplies. Lastly, contact with the Allied powers brought the Jugoslav army the tanks, guns and aircraft which it had previously lacked. The Jugoslav Army of Liberation then became a modern army which participated in the final offensive.

The Belgrade operation is of interest not only because of its consequences, but because of the way it was developed. It furnishes a prophetic view of the formation and employment of future armies.

The basis of the military training of the soldier of tomorrow must be the study of modern guerrilla warfare. Matériel may undergo a formidable evolution. But in occupied countries it will be necessary to know how to hide, to disperse, to march across country, and to silence an enemy sentinel at night without warning. More than ever it will be necessary to understand the technique of dropping and receiving supplies by parachute, radio communication, and secret means of signal communication. It should therefore be the work of general staffs to study all the methods discovered and perfected by peoples who liberated themselves.

The Armed Force of the Security Council

Digested by the MILITARY REVIEW from an article by P. H. H. Bryan in "The Fighting Forces" (Great Britain) September 1947.

THE international police force as the guardian of world peace has been a wishful thought in the minds of men for the past fifty years or so. The shock of World War I, with its ten million dead, and the formation of the League of Nations, intensified the idea of world military security during the 1920's. But the most ardent and honest advocates of peace were invariably the least practical of military planners, and those who clung most obstinately to every vestige of their national sovereign rights were often the most efficient practitioners of war. So, between the somewhat incoherent dreams of the one and the obdurate nationalism of the other, nothing was accomplished and the world experienced an annual minor inter-nation war and eventually World War II.

General Apathy

As far as the British people are concerned, it cannot be said that World War II, up to VE-day, appreciably furthered any desire for international policing. The urgency of the matter had not been sufficiently impressed upon the mind of the average man or woman. Only five millions out of forty-five millions were in the Services—about 10 per cent. Only a portion of the five millions were combat troops upon whom the real dangers of war fell. Of the combat troops, only a small proportion suffered privations and hardships that could be classed as "terrible." The quarter-million killed, although a grim percentage of the total combat troops, only amounted to about one-eighth of one per cent of the total population. The figure of 60,000 killed by air raids was only twice the number killed in street accidents.

The vast majority of the population of the United Kingdom, therefore, was untouched by any real danger or hardship of war. They suffered minor inconven-

iences incurred by form-filling and rationing; on the other hand, a great number of them enjoyed easy profits, large wages, accelerated promotion and considerable appreciation of value of any property or article they owned.

It is not unnatural that, to this 90 per cent of the population, war cannot be regarded as a catastrophic event bringing blood and starvation to all the community. They may wish to avoid war in the future, but they do not feel sufficiently strongly about the matter to clamor for any practical antiwar measures in the shape of international security forces. They have all seen on the films that mushroom cloud of smoke over Hiroshima and most of them have read the casualty figures consequent upon that one bomb. But the remoteness and secrecy of these first bombings of the Atom Era have given them an unreality, an "it-can't-happen-here" flavoring, which does not detract from the general apathy concerning world security.

Object of the Force

The primary object of the Force will be the prevention of any use of the atom projectile as a weapon of war. The Force will act not only in the more probable internation clashes, but in any internal or civil war within a nation.

The destructive power of atomic weapons overshadows all other types. Wars may still be attempted in the future with high-explosive weapons of the pre-1945 type, especially between small countries, but, in the light of atomic warfare, these pale into insignificance. The Force must, therefore, be designed from the first as an anti-atomic warfare force. Any other role may be desirable, useful and just, but very much secondary.

The outstanding features of atomic warfare are:

1. Not all nations may belong to the United Nations and any one member nation may surreptitiously prepare for war and renounce membership simultaneously with her attack.

2. Even with intelligence systems at World War II level, it will be almost impossible for a country to construct atomic projectile launching sites without their location being known.

3. Atomic launching sites can be expected to be deep underground and immune from counter atom-bombing.

4. Large, slow-moving targets, such as motorized formations on land and fleets of ships at sea, cannot withstand an "area-shoot" of atomic projectiles.

5. Even if they could, their slow approach speed of twenty to thirty miles per hour towards the enemy country would still allow the atomic launching sites ample time to launch a crippling number of projectiles at the towns and cities of the attacked nation.

6. The destructive area of atomic missiles is measured in square miles. The atomic-armed defender can bring down square miles of destruction on any area where he knows, or suspects, enemy forces may be, up to a range measured in thousands of miles. The only place he dare not drop on is his own doorstep, say, within three to four miles of himself.

From the foregoing points arises the conclusion that in atomic warfare, strategical movement of military, air and naval forces on the pattern of pre-1945 will no longer be possible.

Strategical atomic bombing of the offending nation by the Security Force will not attain the desired object of the Force because:

(a) Such bombing will not prevent the simultaneous functioning of the offending nation's launching sites.

(b) The atomic bombing of civilian centers will by no means ensure the consequent surrender of the nation. The surprise effect of Hiroshima and Nagasaki will not work again.

(c) Such a war-of-attrition policy will entail enormous slaughter, on both sides,

of the strategically unimportant masses. It will be indecisive and, incidentally, unjust.

The site of battle, in an operation against an atomic launching site, must be in or near the launching site itself, where the enemy cannot utilize his atomic power without destroying himself.

Role of Infantry

Such an operation, involving close fighting in confined areas and dug-in positions, is essentially one for highly trained infantry.

To deliver the infantryman to this only possible site of decisive battle will necessitate a vehicle that must fulfill the following tactical conditions:

(a) It must be sufficiently small that individually it does not present a large target.

(b) It must be capable of quick dispersal and of individual approach to enemy territory, so that collectively a confusing picture of innumerable small targets only is presented.

(c) It must have high speed to penetrate the area of most danger—from zero to 1,000 miles from the enemy's territory—in a time that is less than the time required for the various phases of the enemy's defense organization to pass orders down to the final stage.

(d) It must have high speed in order that operations against atomic launching sites may commence in a few hours. Every extra hour of atomic bombardment will create destruction on a fearful scale.

It is obvious that the only method of transportation that possesses these qualifications is the airplane, and for the particular task of airlanding combat troops under these atomic warfare conditions the 40-seater troop-carrier, capable of some 600 miles per hour would seem to be the type indicated. No land or sea vehicle can qualify for these conditions, while the ultra-large airplanes capable of carrying hundreds will lack mobility and dispersability.

The main striking force required by the Security Council to attain its main object—the prevention of atomic projectile warfare—will therefore consist of close-assault infantry, entirely airborne.

Time is the essence of atomic strategy. The Force, operating from secure bases (in practice, underground atomic bomb-proof fortress-factories) must be able to strike anywhere in the world within a few hours.

Closing with, and intermingling with, the enemy, in as short a time as possible, and the elimination of any other intervening phase of battle, will constitute the tactical foundation for the operations against atomic launching sites.

Non-Atomic Aggressors

Whereas the main component of the Security Council Force must consist of highly trained airlanded infantry in order to counter the main source of trouble to mankind—the atomic bombardment—the prospect of non-atomic war must not be overlooked.

If such non-atomic clashes are on a small scale, they can, of course, be dealt with by detachments of airborne troops. If, however, a large aggressor force, consisting possibly of armored formations and/or naval battlefleets, commences hostilities, it is obvious that, unlike static defended positions, they cannot be overcome by airlanded infantry. The Security Council Force will therefore have to include an atomic-armed section, operating projectiles and/or bombers, as a defense against such possibilities.

The principles so far outlined may appear to have a somewhat paradoxical slant. It has been stressed that the best defense against an atomic-armed aggressor is by the action of a non-atomic-armed force. To advocate that the Security Council Force act as an atomic-armed force against non-atomic-armed forces

may seem like trying to get the best of both worlds, but it should be emphasized again that the large, two-dimensional targets created by sea and land formations (non-atomic armed) are not in the slightest degree analogous to the precarious and fleeting three-dimensional targets presented by an airborne striking force (also non-atomic armed).

At this stage, the military critic may say: "Granted that the best defense against an atomic-armed foe is the use of non-atomic airlanded infantry; granted that the best defense against naval fleets of motorized land troops is the use of atomic weapons; but what if the aggressor nation adopts the same idea, and makes a lightning attack with high-speed airborne infantry on the base fortresses of the Security Force, which will resemble, from the defense aspect, the atomic-immune defended atomic launching site positions?"

This, of course, is by no means an impossibility, but it can be made an improbability by the Security Council striking force being manned, equipped and maintained at a qualitative and quantitative level with which no solitary nation could hope to compete. The Security Force will enjoy the advantages of the pooled results of scientific research and should possess the best attainable equipment, weapons and aircraft. Bases throughout the world will give it a global strategic advantage over any one nation.

At the worst, such a clash would, in the initial stages at least, be merely one of infantry versus infantry under very localized conditions and, bloody though such battle may be, it is not comparable with the mass horrors of atomic bombardment. It may also be argued that an aggressor nation may adopt this strategical policy of first capturing the bases of the Security Striking Force, with the ultimate aim of then being free to atom-bomb its chosen victim or victims. The only consolation in this extremely hypothetical situation would be that if such a nation were so powerful as to be able to conquer the World's Force, it would hardly need to use the atom bomb to secure submission of other nations—thus giving the Security Force the posthumous credit of having at least succeeded in its object—the prevention of the use of atomic weapons upon mankind.

International Recruiting

No army consisting of various foreign formations under a Supreme Commander has yet proved an unqualified success. Normally the Supreme Commander does not have the direct power of command over foreign subordinates that he has over his own country's forces. In both World Wars we have had examples, on both sides of the fence, of the weaknesses of military alliances. The Supreme Commander cannot utilize his own particular national brand of "military law" over individuals of a foreign army. His subordinates have to serve two masters—their own political chiefs and their Supreme Commander. Every doubtful or imaginarily doubtful order is referred back first to their government.

Apart from the general lack of "grip" in mixed armies, the national rivalries and the hindering effects of political, rather than military, tactics, the standard of military training in the various major armies of the world varies considerably.

Difference of training, tactics, signal procedure, equipment and weapons, may not denote relative inferiority or superiority, but it causes tremendous confusion during operations. As a rough guess, it could be stated that the efficiency standard of a mixed force is one-third less than that of a uniform force.

National Loyalty

The question of mixed formations in the Security Council Forces raises a further problem—that of national loyalty. A foreign contingent serving as part of the

World Force would lead very similar lives to that of, say, the British soldier in India. The members of the contingent would lead a self-contained life within their own units, meet and speak only in their own tongue to their compatriots, and, in general, retain all their "national" characteristics.

Should a nation come into dispute with the Security Council, it would be too optimistic to expect the Security Force contingent of that nation to take part in operations against its own country.

It is therefore suggested that the present trend of thought which envisages the various nations each contributing their contingent to the Security Force, is faulty, and that the only guarantee of a reasonably reliable and impartial World Force is by an individual universal policy with the object of manning the Force on a cosmopolitan basis.

There are many problems, however, that arise in connection with an international force of this type. First is that of language. This is difficult but not insurmountable. Whether English, French, German or Esperanto is to be the chosen language is more a linguistic problem than a purely military one. Apparently, foreign recruits in the French Foreign Legion found no difficulty in acquiring a working knowledge of French within the first few months. Recruiting of the Security Council Force will have to be on a long-service basis—ten years or more—as the high degree of training required will make short-service engagements and quick turnover of man power uneconomic. It will also offer the prospect of a life career, and, under these circumstances, a few months' struggling to acquire a new language will not seem out of proportion.

Technical Nationality

The next problem is that of technical nationality. If a member of the Force takes part in an operation against his own country, there must be no political threat used to intimidate him on the grounds that he may be liable to answer a charge of treason on his return to his native land. This must be ironed out from the start by a definite policy, agreed on by the United Nations. Probably the Security Force soldier will have two legal "nationalities"—a United Nations one and that of his own country. He might also be granted the choice of acquiring any nationality represented by the United Nations on or before his retirement from the Service.

It is not anticipated that there would be the slightest difficulty in recruiting the required numbers for this Force. The trouble will be to make a selection from all those who offer their services.

Soldiering, war and adventure have for centuries held a magnetic attraction for men of spirit in all lands. But there is no such enticement today. Millions of young men in all countries are now leading frustrated, cramped and poverty-stricken lives, apprehensive of the vague rumblings of war—another world war fought with a terrible mass-murder weapon. For these men there is no lure in such a war. They know that for them it will mean at the best, soulless conscription, separation from their families, and the rigors of battle to further some futile political end; at the worst, it will mean devastation and horror throughout their homeland and the obliteration of their home towns, their children and probably themselves. Glory is a word that does not appear in the military vocabulary of World War III.

The decision to form a genuine Security Council Force will bring hope again to the world. The international soldier will acquire universal prestige as the warden of mankind, and the honor and glory that was once attached to the profession of arms will once more be revived.

Strategic Aspect of the Arctic

Digested by the MILITARY REVIEW from the "Journal of the Royal United Service Institution" (Great Britain) November 1947.

A time will no doubt come when planners will make little use of large maps hanging on walls. Even now many of us are too "Mercator-Chart-minded." Therefore, it is suggested that all operations rooms be supplied with large globes, sectioned at the equator, to correct an entirely false attitude due to countless generations of two-dimensional maps.

The distance covered on normal air routes between the United States and the nearest point in Russia, via the British Isles, is rather more than 4,200 miles; that by the great circle route via Iceland is a few hundred miles less. From the northern tip of Alaska to Leningrad over the Pole is, however, only 2,700 miles, while northern Greenland is only 2,400 miles from Moscow.

The Russian Aspect

Though they have not recently shown great advances in trans-polar flying, the Russians have settled and developed more than two million square miles of land in the Arctic extending over 160 degrees of longitude. Vast sums have been spent during the last fifteen years by *Glavsevmorput* (Chief Administration of the Northern Sea Route) forcing the passage which connects Russia's European ports with the Pacific. Many deposits of oil, coal, iron, copper, nickel, mica, gold and other minerals have been discovered. Great hydro-electrification schemes have been developed. Ports have been built, and a network of air routes set up. There are numerous weather stations and no doubt an elaborate radar system is being developed.

It is interesting to review the "reactionary" areas of the world from the Russian aspect. Spitsbergen, Iceland and Greenland loom very large in the foreground. Some strategists may be inclined to consider them too vulnerable for advanced airdromes in time of war owing to their remoteness from the centers of population. Spitsbergen is, of course, so much nearer to Russia than to Britain (it is 1,200 miles from the Orkneys) that the Russians can probably rule it out as a possible hostile base. As a Russian base, it would, of course, be vulnerable to sea attack, especially during the long winter darkness, and the chances of sufficient supplies and equipment being collected, replenished and defended, would have to be carefully estimated. Approach to the island during the winter over the polar ice would have to be considered.

Spitsbergen is within 2,000 miles of Alaska and about the same distance from the most northerly inhabited points in Canada. It could well serve Russia as a stepping stone to southern Greenland, which in turn is within easy reach of Newfoundland and the great cities of Canada.

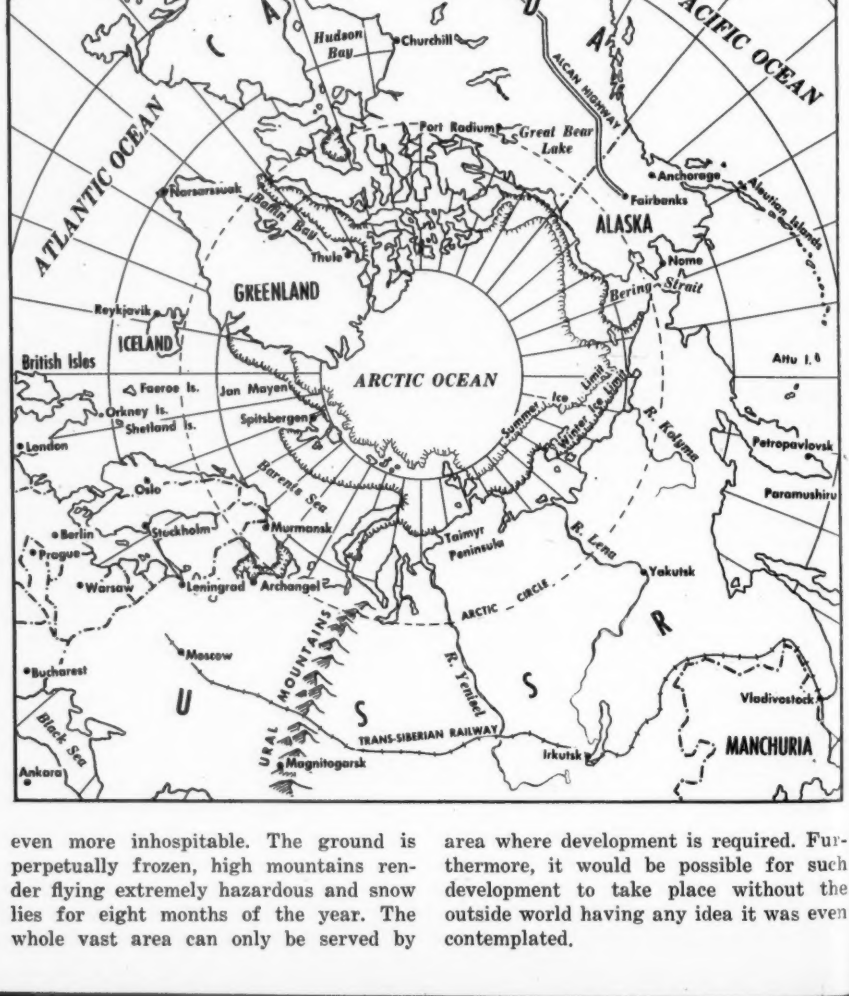
If, owing to inadequate seapower, Russia considered Spitsbergen too vulnerable in time of war, Murmansk would be the next choice. This port is ice-free all winter, is served by an electric railway, and has a population, including the surrounding district, of nearly 300,000. It would serve well as a jumping-off place, though considerably farther from Greenland.

Passing over about 90 degrees of barren and almost uninhabited country, the next area to be considered is the delta of the Lena—Russia's longest river. This great waterway is navigable for nearly 2,500 miles and connects the far north with the Trans-Siberian railway. At first sight this appears quite suitable for the development of air bases, but there are considerable difficulties to be contended

with. The river is only navigable for half the year and the mouth is sometimes blocked by ice during the whole summer. The Lena basin is subject to frequent eighty miles per hour gales. There is always danger of sudden fogs.

Farther to the east the land becomes even more inhospitable. The ground is perpetually frozen, high mountains render flying extremely hazardous and snow lies for eight months of the year. The whole vast area can only be served by air or by steamer from Vladivostok along 10,000 miles of coast as far as the Kolyma River.

Nevertheless, the Russians have shown themselves capable of prodigious feats in road and airdrome construction. Large numbers of workers can be settled in any area where development is required. Furthermore, it would be possible for such development to take place without the outside world having any idea it was even contemplated.



America and the Far North

Since the end of World War II, the Americans have been acutely aware of the importance of the far north. In cooperation with the Canadians a great deal of survey work has been done. Exercises "Musk-Ox," "Polar Bear," "Leming" and "Frigid Frost" are examples. Defenses are being constructed in the Aleutians (to which Petropavlovsk base in Kamschatka is Russia's answer) and numerous airfields have been constructed in Alaska. A railway connects Anchorage on the south coast with Fairbanks, three hundred miles to the north, where Ladd Field is a major air base. The Navy has a 35,000 square mile oil reserve at Point Barrow.

The Alaskan Highway, built during the war over Canadian soil to enable supplies to be moved up to Alaska, is now being maintained with United States financial assistance.

It will be seen that whereas northern Russia and the northern coasts of the Western Hemisphere face each other over about 2,000 miles of frozen wastes, Alaska and Northeast Russia are near neighbors.

Long Range Warfare

It is necessary therefore to envisage a war at a range far exceeding anything previously known—warfare requiring weapons now only on the drawing board. Advanced airfields must be built, supplied and defended; probably enemy advance airfields must be taken into account, together with the possibility of capturing and using them. Even if aircraft existed with an effective range far exceeding that of the American B-29, vast distances over enemy territory would have to be covered to strike a vital blow. Such raids would be comparable with attacks on Germany from Newfoundland with Britain in enemy hands.

A more likely solution would be a guided atomic weapon which could be carried by aircraft across the polar region and then launched on its way. The enormous cost of one atom bomb and the vast damage it could do would, however, possibly be deemed to justify, if not a suicide weapon, at least a one-way trip of a piloted aircraft responsible for guiding the missile to its target.

The vast extent of their mineral resources, and their proved ability to transfer whole industries to less vulnerable areas, might give the Russians an advantage in this type of warfare.

From northern Greenland, Leningrad is only about 2,200 miles. Magnetogorsk is only 2,800 miles. In Russian hands, Greenland would threaten from less than 2,000 miles most of the great industrial areas of Canada and the United States, while trans-Atlantic traffic of all kinds would be exposed to attack. Many of the capitals of northern Europe also lie within 2,000 miles.

Alaska in Russian hands would threaten the whole west coast of Canada and the United States, and it must not be forgotten that this region is nearer to Russia than to the well-populated areas of those states. Incidentally, occupation of Alaska by an enemy would probably neutralize the only known deposits of uranium in the far north, at Great Bear Lake.

The main difference between what might be called the Polar war and the late war would, of course, be the fact that the former would be principally an air war. There would be no question of victory through a preliminary air bombardment in support of advancing fleets and armies. Fleets would be used to capture islands or coastal air bases, armies to occupy and defend them, but the vast no-man's land would remain but a measure of the range and accuracy of aircraft and guided missiles and would be inhabited only by isolated meteorological stations and presumably by a series of Air Ice Rescue bases equipped with long-range helicopters.

The Principles of Military Government

Digested by the MILITARY REVIEW from an article by Major General A. V. Anderson from "The Army Quarterly" (Great Britain) October 1947.

Theory of Military Government

THE expression "military government" has hitherto normally been used to describe the special relationship which exists between a military force in occupation of enemy territory in time of war and the civil population of that territory. This special relationship involves on each side certain rights and duties. It affects the general administration of the territory, the persons of the inhabitants, both public and private property, and has various other grave consequences.

The actions of both parties are governed by the Laws and Usages of War on Land, which consist partly of customary rules which have grown up in practice and partly of written rules which have been agreed upon by the principal Powers. These written rules are contained in the Hague Convention of 1907, and the Laws and Usages of War on Land are described at length in the Manual of Military Law, Chapter XIV.

The main principle governing the conduct of military government is that the occupation of enemy territory in war creates a condition which is entirely different from subjugation through annexation. During such an occupation the authority of the state may have passed *de facto* into the hands of the occupant, but the sovereignty of the legitimate owner of the territory is only temporarily latent and still exists. The rights of the occupant are merely transitory, and he should only exercise such power as is necessary for the purpose of the war, the maintenance of order and safety and the proper administration of the country.

Neither the ordinary civil nor criminal jurisdiction in force in the home territory of the occupant is considered to extend over occupied territory, and the civil and penal laws of the occupied country continue as a rule to be valid, all crimes of the inhabitants, other than those of a military nature or affecting the safety of the Army, being left to the jurisdiction of the local courts. The financial administration necessarily passes into the hands of the occupant, but all fiscal laws remain operative and the collection of taxes, dues and tolls payable to the State must be made, as far as possible, in accordance with the rules in existence and the assessment in force. Although the personal services of the inhabitants may be requisitioned (with certain safe-guards in connection with work of a military nature), private property must be respected, subject to the army's right to make use of and to requisition property under certain conditions.

On the other hand, the commander of the occupying forces is obviously in a position in which he may have to exercise the widest and the most searching powers. His primary responsibility is the successful prosecution of the war, and military necessity may justify far-reaching measures. At the best he has to control a hostile population through the agency of an enemy administration. Alternatively, if the majority of the peacetime officials are unreliable or have deserted their posts, he may have to create new organs to execute his decisions, a proceeding which must always lead to inconvenience and dislocation. He may even find himself having to restore and maintain the shattered economy of the territory for which he is responsible, and having to expend resources on the territory rather than draw sustenance for his forces from it.

Neither the Hague Convention nor the Laws and Usages of War concern them-

selves with the form of government or administration which should be imposed by the occupying power. Little attention appears to have been devoted to this aspect of the subject by British authorities, either as military students or as military historians, and the Manual of Military Law, is naturally primarily concerned with the subject in its legal aspects. The most suitable form which a piece of administrative or governmental machinery should take is obviously a question which can only be decided in the light of the circumstances existing at the time, but it is regrettable that the policy issues involved had not been studied in the light of our experiences during the war of 1914-18.

When British forces commenced to occupy Italian territory in North and East Africa in 1941, it was fortunate that the operations were under the control of a commander who had personally had previous experience of the problem.

Italian Colonies in Africa

General Wavell had served with Lord Allenby in Palestine in World War I, and was also well acquainted with the problems which had arisen at the same time in Mesopotamia and with the methods which had been used to deal with them. The organization which was set up in 1941 in North and East Africa followed closely, therefore, upon the 1914-18 models of Palestine and Mesopotamia.

In 1941 responsibility for the administration of occupied enemy territory (OETA) was placed upon a Chief Political Officer at General Wavell's headquarters, who acted directly under his orders and who was provided with a small coordinating and policy-making staff. In each of the territories concerned the Chief Political Officer was represented by a Deputy, whose task it was to assist the local commander in carrying out his personal functions as military governor, for which purpose the necessary establishment of executive officers was also provided. OETA was from its inception an integral part of the military forces and the position of a Political Officer was that of a staff officer to his commander for military government purposes. Although a large measure of delegation of power was found practicable at a comparatively early date, the original organization followed the principle that military government is a function of command and all executive action was taken under the authority of and in the name of the military commander.

Italy and Northwest Europe

It was realized at an early date that, although the same basic principles might continue to apply, a very different set of conditions would have to be faced when our forces started to occupy enemy territory in Europe. It was certain that the material agencies through which the requirements of the civil population are normally made available would be considerably disrupted during the course of operations, and it was also certain that the armies themselves would make heavy demands upon what capacity was left undamaged. These requirements of the military forces would necessarily have to be given over-riding priority, and the civil population would have to be dependent upon what capacity remained for the many services upon which the well-being and even the existence of a normal civilized community depends.

The problem was based upon the recognition of the fact that the successful attainment of the military objective would be seriously prejudiced and might even be made impossible if the civil population could not be ensured at least a minimum of freedom from want, fear and disease. Even in enemy territory the local administration and the local population would be asked to cooperate with the military forces in keeping running or rehabilitating such local services as transpor-

tation, water supply, sewage disposal, etc., and, in addition, they would be looked upon as a source of supply for essential labor and for many other military requirements.

It was also obvious that the security of the military bases, depots and lines of communication would be seriously endangered by a desperate civil population, while the very existence of the military forces might be threatened by disease and epidemics which could not be confined to the civil population alone.

Although the initial landings in Europe were made in enemy territory, the invasion of Normandy and the liberation of Northwest Europe presented a similar problem, but one which was essentially different in principle. Although they were temporarily in enemy occupation, these were not enemy territories, and the relationships which would exist between the liberating forces and the civil population could not be governed by the Laws and Usages of War relating to enemy territory nor by the provisions of the Hague Convention. Most of the rightful governments of these territories were in exile and a considerable period might elapse before they could be reinstated and could resume their proper functions. Meanwhile military requirements and military security would be matters of the highest importance and it was essential that the commander concerned should be invested with all the powers and all the sanctions which would enable him to exercise over the civil population such control as the exigencies of the military situation might demand.

In the case of these Allied territories this necessity was met by means of a "Civil Affairs Agreement" entered into between the governments concerned, which, while fully recognizing the sovereign authority of the indigenous government, conferred upon the commander of the invading forces these essential rights and powers to be exercised by him during the operational period. This aspect of military government is one which is perhaps without precedent and has, of course, no present recognition in international law. It may be argued that such a situation is not military government at all, and it is certainly, in its basic conception, something quite different from military government as previously defined. On the other hand, the position of a military commander under such conditions bears little relation to the position which normally exists when military forces enter Allied territory at the outset of a campaign, and whether his powers are based upon the Laws and Usages of War or upon a specific *ad hoc* inter-governmental agreement, the fact remains that, in such a situation, the military commander becomes, at least temporarily, the only effective source of authority.

The organization that was set up to enable the military commander to meet his responsibilities towards the civil population in Northwest Europe differed in many respects from that which had been found suitable in Africa. There was, of course, the major difference that operations in Europe were under combined Anglo-American control and the military government organization was therefore established on a combined basis, with British and American officers working side by side. In Europe, moreover, the machinery of civil administration was very much more complex than in Africa.

The organization had, therefore, to be more technical in many respects, but it was decided that its task should be primarily one of first-aid and resuscitation and secondly one of assistance and control, pending the assumption of responsibility in liberated territory by the indigenous government concerned. In the initial stages local resources would have to be supplemented by the issue of relief supplies of food, clothing, fuel and medical stores; refugees and displaced

persons would have to be controlled, accommodated and maintained; and essential services such as transportation, water and sewage would have to be restored.

At a later stage more elaborate projects could be started and the first steps taken towards the restoration of the economic life of the community, both in its own interests and in the interests of the war effort. From the earliest days law and order would have to be restored and maintained, the security of our base and lines of communication would have to be ensured and military demands for assistance from the civil population would have to be met.

Operations in Italy raised their own peculiar problems, consequent upon the signature of the Italian armistice and the grant of co-belligerent status. As the combined Anglo-American forces advanced up the peninsula, however, so the country was brought under the control of the Supreme Commander in his capacity as military governor, and it remained under his control until he considered that conditions were such as to justify its return to the control of the Italian government. Finally, and several months before the signature of the Italian Peace Treaty, the powers of the civil government were restored throughout the whole of Italy, except in the border provinces of Venezia Giulia and Udine, which were alone retained under military government pending the final settlement.

In France, Belgium and Holland military government was not proclaimed as such, and the relationships between the military forces and the civil population in the early days of liberation were conducted through the "Civil Affairs" organization, acting under the authority of and in the name of the Supreme Commander, and exercising the powers which had been conferred upon him under the terms of the appropriate Civil Affairs Agreement. As the campaign progressed and the battle lines moved eastwards, so the various legitimate governments returned from exile, and gradually the zones in the rear of the armies passed under their control.

In Germany, those areas which were occupied during the course of operations were placed under military government on the lines contemplated by the Laws and Usages of War and in the Hague Convention. The agency through which the Supreme Commander carried out this function of military government was the same as that through which he had conducted his relationships with the population of the liberated territories, and as the armies moved forward, so the Civil Affairs organization moved forward with them over the frontier into Germany. There was obviously need for difference in attitude and difference in treatment, and once Allied territory had been left behind, the authority of the Supreme Commander rested upon a different basis. His authority was, however, still limited and his functions as military governor were still purely military functions and still subordinate, or complementary, to his primary responsibility for the defeat of Germany.

The unconditional surrender of Germany gave rise to a wholly different situation. Under the terms of the Instrument of Surrender, the Allied Powers assumed all the judicial, legislative, executive and administrative powers hitherto possessed by the German Government, which was declared no longer to exist either in theory or in fact. The whole of Germany was brought under military government (each of the Powers being responsible for the government of its allotted zone), but the basis upon which the authority of that military government rested had completely altered and its powers and obligations had increased to an almost infinite extent. There was no longer a German Government in existence with powers which were merely lying latent. The Allies had

taken upon themselves all the authority hitherto possessed by that vanished government, and the military government organization now became the machinery through which this all-embracing authority was to be exercised.

This basic change in the legal situation had no immediate effect upon the military government agency which had been functioning during the operational period. It was obvious, however, that the extent of the powers and responsibilities which had been assumed would necessitate the provision of a larger and more complex organization than had hitherto proved sufficient. This elaboration of the machinery in the field was carried out gradually as personnel of the Control Commission for Germany (which had been forming in England since the summer of 1944) arrived in the country, until finally, some five months after the date of surrender, a new Government Department (the Control Office for Germany and Austria) was established in London and the new instrument of the Control Commission came fully into operation.

Far East

Operations in the Far East brought forward their own military government problems, particularly in connection with the large areas of British territory which had been overrun by the Japanese.

It was known that the pre-war administrative machinery of these territories had been evacuated prior to the Japanese occupation or had since been destroyed, and it would therefore be necessary to re-establish this machinery from its foundations. The most important consideration, however, was that each individual territory, after liberation, was likely to be required as the military base and assembly point for operations against the next. It was therefore essential that the Supreme Commander should be vested with all the necessary powers and authorities which would enable him to ensure that military requirements were given the necessary priorities and that the requisite balance was maintained between operational needs and the needs of the civil population.

By specific direction of His Majesty's Government, the Supreme Commander of the forces which liberated British territories in the Far East assumed by proclamation full judicial, legislative, executive and administrative powers in these territories under the sufficient justification of military necessity. At the same time he established a military administration which was to serve as the agency through which he would exercise these powers, and which would form the foundation upon which the eventual civil administration could be re-established. These British military administrations (one of which was provided for each territory) were organized on a military basis, but were planned primarily with a view to the long-term administrative requirements of the territory in question. They were composed largely of individuals who were specially qualified in civil administration or who had special knowledge of the Far East and its peoples, but they were provided also with a proportion of officers with purely military qualifications, whose principal functions were to ensure the necessary close cooperation with the normal military machine and to carry out certain duties outside the usual scope of the civil administrator.

As in Europe, the problems of military government in the Far East in the initial stages were mainly concerned with the restoration of law and order, the re-establishment of the agencies of civil administration, the immediate relief of distress and the rescue and care of prisoners of war and displaced persons.

As conditions stabilized, economic and rehabilitation problems came to the fore and the task assumed more and more the character of that normally carried out by

a colonial civil administration. The organization of the military administration was gradually adapted accordingly until finally, when it was deemed that the appropriate time had arrived, the Supreme Commander handed over his responsibilities in each territory to a newly appointed civil governor. This transfer of responsibility was effected with the minimum amount of dislocation in the machinery of administration, and the civil government was able to take over an organization which had already been firmly established.

It is interesting to note that military government, or military administration, was proclaimed in British territory not only in the Far East but also in the Channel Islands in the summer of 1945. British Somaliland also was placed under military government on its liberation in the spring of 1941 and still remained under a British Military Administration in 1947.

Conclusions

The experiences of the past few years appear to suggest that the principles of military government deserve recognition and consideration outside the pages of the Manual of Military Law, and that it will be necessary for the student of war in the future to examine the subject from the wider aspects of command, organization and administration—aspects hitherto comparatively neglected.

The necessity for making provision for the bare minimum requirements of the civil population may be forced upon a commander not for humanitarian or philanthropic reasons but as an essential part of his operational plans. The satisfaction of these minimum requirements may give rise to grave administrative problems and may entail a heavy drain upon limited sources of supply and upon shipping and other transportation facilities. Demands may not be confined to food, fuel and clothing, but may also include large quantities of technical stores.

Assistance will almost certainly be required in restoring and supplementing the efforts of local civilian services, such as medical and public health, engineering, transport and public security; and if duplication and waste of effort are to be avoided, it will be necessary for each of the technical services of the Army to play its appropriate part. There will of course be need for a technical agency of military government, but there will be an even greater need for maintaining the necessary balance, at all levels and throughout all services, between the Army's own requirements and those of the civil population.

A military governor exercises authority solely by reason of the fact that he is a military commander, and the function of and responsibility for military government can never be divorced from the function of command. In the initial stages of an operation a military governor will be chiefly influenced in his actions by operational considerations, and even under more stable conditions he will continue to be influenced primarily by considerations of a military nature, although these may well include factors of great political importance.

It is suggested, therefore, as a first principle, that these facts should be reflected in the type of technical agency for military government which it is decided to establish. The object of such an agency should be to provide the commander with the most suitable instrument by means of which he personally can discharge his responsibilities. It will only be under the most exceptional circumstances that the technical agency for military government should be designed with the object of removing the bulk of these responsibilities to other shoulders.

The agency for military government will be performing functions analogous to those of a technical service, and will re-

quire the full support of the other branches and services of the Army. Military government problems will have to be dealt with in relation to the over-all requirements and resources of the Army as a whole.

As a second principle, the agency for military government should be integrated as closely as possible into the normal military machine and its activities and requirements should be coordinated with those of the rest of the Army as a matter of normal staff duties.

Following upon this second principle the military government agency should always normally be established on a military basis, and that if its integration and cooperation with the rest of the military machine are to be effective, it should include a proportion of officers with general military (including staff) experience, as well as the requisite number of experts in the technicalities of civil administration.

It may be claimed that under modern conditions the problem of military government has become one more factor which must be taken into consideration in future in military planning. It may be further claimed that the magnitude of the problem will frequently be such that it will be necessary to make special provision to deal with it. Such special provision may include the establishment of some additional service or agency to deal with the technicalities involved, but towards the solution of the over-all problem all branches and services of the Army will be called upon to play their appropriate part.

Defense of Built-Up Areas

Translated and digested by the MILITARY REVIEW from an article by Major Eduardo de Ory, in "Ejército" (Spain) December 1947.

OF the various factors which require planning for defense of built-up areas, this discussion will be limited to the following:

(1) Political, social or public disorders.

(2) Revolts encouraged by groups within the civilian population due to movements inspired from abroad.

(3) Rebellion, in time of war, inspired by enemy agents.

(4) Enforcement of law and order in case of civil war.

It should be stressed that subversive movements generally become serious if they are not speedily suppressed by all available means planned in advance.

Main Aspects

Every tactical or organizational problem requires previous and careful consideration of the area of operation, the elements involved, and the final objectives. The problem now under consideration is both tactical and organizational.

The three aspects which will be considered here include:

(1) The *area:* the built-up areas with their particular tactical characteristics.

(2) The *elements:* our own groups, represented by the means at our disposal; and the enemy, their probable means, tactics, or method of operation; and

(3) The *final objective* and the means to accomplish it.

These are the principles and organization upon which every defense plan must rest.

Built-Up Areas

Built-up areas present particular tactical characteristics derived from their man-made features. Structures, and their distribution into streets, avenues, parks, etc., canalize the action and afford ex-

cellent communications but create numerous obstacles. The opportunities for close observation are frequent, and there is good cover from small-arms fire; but artillery fire is hazardous.

Because of the dispersion imposed by the layout of streets, command becomes decentralized and consequently difficult. Air superiority is necessary for observation, and superiority on the ground is required for progress. As to weapons, extensive use is made of high trajectory, direct fire weapons and demolitions.

The defense, as usual, depends upon the terrain. It requires previous preparation and a sound distribution of forces.

The Means

The means, in this case, has a broader sense than the usual tactical meaning, because it comprises not only manpower—troops, police forces, friendly natives—but also communication facilities, liaison, etc.

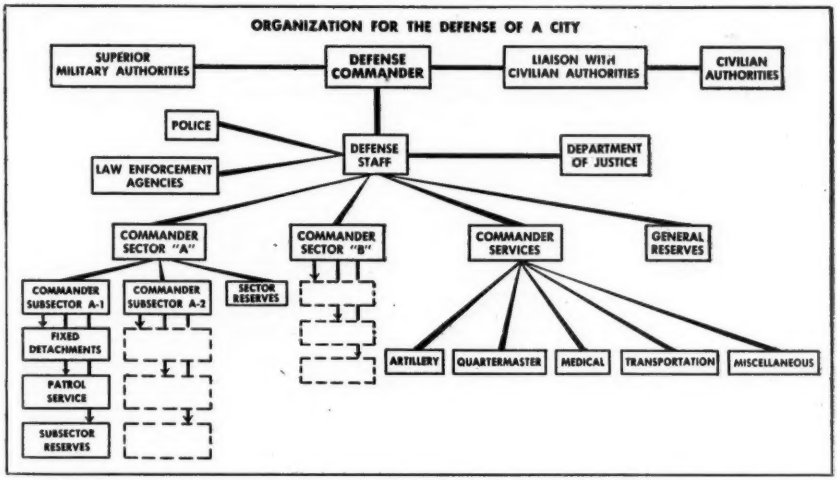
The command defending a built-up area must avail itself of all these means, and its success largely depends upon the ability to obtain and wisely and profitably use them.

The enemy, which is the most dangerous and unknown factor, is the most important to be considered, since its closeness to or presence within the defense positions affords it complete information of defense movements and makes it possible to effectively block any defense maneuver.

Nevertheless, the presence of enemy groups close to the defense tends to reduce their effectiveness. In some cases it is possible to round them up in their positions, or they may be valuable in providing the command with information on their leaders and locations.

The actions of such enemy groups can be carried out either under cover or in the open. Undercover operations are more likely to take place during the social and political stages preceding a war, while open operations are more probable during war itself.

The preventive measures which are adopted can, if properly and rapidly executed, noticeably influence and even bring the total defeat of the enemy.



Different Phases

Although subversive activity can unexpectedly come into existence with full intensity, the most normal situation is for a breeding period, characterized by underground action, to precede the rebellion. The situation during such a breeding period can not be considered normal, nor is it exceptional, either. Therefore there are two phases which are typical. They can be classified as the phase of "alert" and the phase of "war."

The first phase is intermediate between peace and war. It begins when enemy activities stop being sporadic, isolated, and unimportant events, and begin to require the adoption of precautionary and safety measures beyond those normally observed.

At this stage the protection of key installations is increased, protective measures are taken against suspects, sentries are posted, etc.

Law enforcement agencies retain their responsibility in this phase, and the army continues to be—at least apparently—unconcerned with the special situation.

Progressive adoption of measures which are essentially preventive may cause this phase to evolve into others, the last of which gives way to a state of war when the preservation of law and order becomes part of the military function and all offenses fall within the jurisdiction of military law.

During the "war" phase, the situation remains unchanged when public disorders are absent or develop only on a small scale. On the contrary, the occupation by the enemy of certain districts or sections of built-up areas may result in an outburst of hostilities in an effort to drive him out of such areas. In the latter case, the defense plan goes completely into operation.

Mission of the Defense

The mission of the army in the defense of built-up areas against attacks from within has both an offensive and a defensive aspect.

The army must occupy key positions, either within or outside the city, to enforce law and order, and it must react energetically against any disorder until the groups have been disbanded and normality is restored.

The defense plan logically rests upon the possession of a minimum of routes or lines of supply for the city. This is assured by occupying key positions and by locating, isolating and reducing all hostile groups.

Defense Organization

The segmentation imposed by man-made structures, the local nature of any subversive activities, and the need for speeding up countermeasures, make it advisable to subdivide the city into sectors, each being assigned to a specific unit.

The frontage and depth of each sector, and the number of troops assigned to each, depend upon factors such as the extent of the built-up area, the number of available troops, the degree of danger present in definite zones, etc. Normally, in large cities of 150,000 or more inhabitants where there are relatively important garrisons, sectors may be assigned to regiments. The extent of such sectors vary, according to circumstances, between one and three square kilometers.

In smaller towns, sectors can be laid out for defense by a battalion, bearing in mind that it might be advisable to have a primary division of these units in sectors and a further subdivision in the subsectors.

Boundaries between sectors or subsectors should not follow a street, inasmuch as streets are considered to be compartments themselves, and both sides of the same street should be defended by the same unit.

As to the layout of sectors, it seems advisable to divide the city into a star pattern (Figure 1), because it affords each sector an outlying and an urban section of the city, thus allowing intercom-

munication between sectors, and routes for the reserves to be committed either inside or outside the built-up area. Obviously a rigid application of this rule in very large areas would result in a layout of sectors which would have the form of wedges, with very long lines of action and very narrow, unpractical, and inefficient fronts. In such cases, several central sectors, surrounded by sectors on the periphery, may be organized as shown in Figure 2. Needless to say, the possession of the central sectors is a vital necessity which justifies the increase of their strength either by reducing their area or by increasing their means of defense.

Distribution of Forces

Each sector falls under the custody of

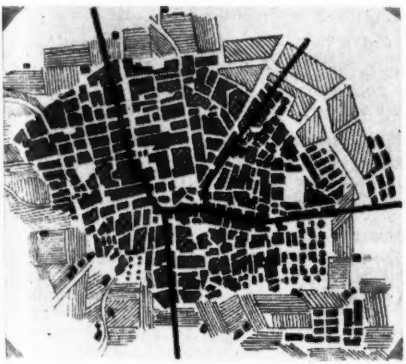


Figure 1.

a definite force whose commander assumes direction of the sector in addition to his duties with the troops.

The logical distribution of the forces in a sector may be divided into three groups: (1) the custody and defense of key positions; (2) security and surveillance patrols; and (3) reserves.

The first group, which is the skeleton force of each sector, assumes the defense of key positions; such as buildings which must be permanently protected due to their prominence, their good fields of fire, their convenient location, or the fact that they house installations of vital importance to the normal functions of the city.

There are no fixed rules as to the importance of each group, because this is determined by the availability of troops and the need for preserving each position. Key positions should be classified as to

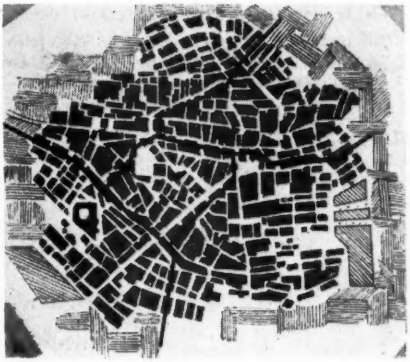


Figure 2.

the tactical importance in the defense, that is, those whose possession is desired to assure the better conduct of the defense, which, as a last resort, can be used as strongholds for launching a counteroffensive; and those which it is desired to defend from attack or sabotage, such as government offices and installations, power plants, railway stations, etc. It is logical, therefore, that the strength of such troops may vary from four enlisted men and a corporal, for guard purposes, to a section, company or even a battalion, in such case as the organized defense of a building or group of buildings of primary importance to the control of the built-up area.

These forces are essentially stationary in nature, and when their positions or zones are assigned they organize their

defense, emplace their guns, establish their observation posts, etc.

Surveillance and security patrols are established between the fixed emplacements and other places of special interest which lack fixed garrisons for the purpose of enforcing law and order and patrolling streets. These patrols perform constant duty along established routes whose length, normally, is determined by the distance that can be patrolled in an hour.

These patrols are authorized to check identifications and arrest suspicious persons. In many cases they are the first to establish contact with enemy groups.

The variety of missions that patrols may be called on to perform, the need for leaders who can rapidly solve any difficult situation which arises, and the need for providing these groups with commanders who are loyal and not subject to intimidation, make it advisable that the patrols be commanded by officers.

Strong reserves should be formed to reduce any attempted disorder with speed and power. The proportion of such reserves should be not less than one-third of the total strength within the sector or group to which they belong. The reserves should have great fire power, armored elements if possible, and motorized equipment. They should be located in central positions such as avenues, parks, or important intersections, from which they can move with minimum delay to the place needed.

Liaison

Liaison is a very important aspect of the conduct of the defense.

Command posts for the defense of sectors, subsectors, and stationary detachments, when possible, should be located in buildings having commercial telephone lines, or a field telephone to the nearest commercial line.

The annex to the orders and instructions given the heads of the defense should include a list of the Command Posts and their telephone numbers, as well as their call symbols.

The Signal Corps should have, in peacetime, all the necessary equipment for laying a field net, to include the subsectors, in case of sabotage. Further extensions from the subsectors would be the responsibility of the subordinate units, and should be available to the extent required by circumstances and available means.

In fact, because all measures taken will never be too many, a visual and radio net to include the subsectors should also be established.

The Services

A complete study of the services can not fall within the scope of this article, since the services extend beyond purely military matters to fall within those of social and economic nature.

As a reminder, it is pointed out that the common denominator for all services is foresight.

Foresight should include the establishing of depots at the headquarters or installations set up in the defense plan; a survey of water sources in case water lines are interrupted; a study of the possible use of civilian and military dispensaries and hospitals to organize evacuation; ammunition supplies, transportation, and others.

Defense Plans

The development of a defense plan for a built-up area is a complex job requiring careful study of numerous problems, from those of a strictly military nature to those affecting the civilian problems of supply, evacuation, transportation, etc.

Here we are limited to the purely military aspect and will therefore outline several ideas regarding the development of such a plan as pertains to military forces and the services which are necessary to them for combat and survival.

Organization Work

The supervision of organization and the

command of the defense is a responsibility of the senior military authority, who is aided by his immediate staff.

Numerous authorities and civilian organizations, such as civilian leaders, the police, chiefs of technical services, etc., cooperate with the commanders of the arms and services in preparing the plan by providing necessary facts and advising on definite problems.

The work involved in the organization of a defense plan can be classified into two groups:

(1) A series of preliminary studies, generally of a statistical nature; and

(2) The study of the defense plan proper and the preparation of the orders and instructions necessary to put it into effect.

Preliminary Work

The staff of the military commander of the area should prepare files and statistical reports of all key positions and weak points of the built-up area.

These include Command Posts, communications centers, means of transportation, suspects, and lists of retired and reserve officers who can be recalled into active service.

In many cases, due to the need for maintaining these files up to date, the military commander may require the police and other civilian authorities to prepare and maintain these records under the supervision of the military authorities.

Preparation of the Plan

On the basis of the preliminary analysis, the key positions, weak points, bivouac areas, buildings, and zones of special interest will be marked on a map of the built-up area prepared on a sufficiently large scale.

Taking into consideration the available troops, the extent of the built-up area, the degree of danger present in each district, the topographical features and buildings of each, and the situation of the districts, the sectors deemed convenient for the organization of the defense will be laid out.

The fact that units assigned and sectors occupied by them are interdependent must be kept in mind, and for that reason the breaking down of the built-up area into sectors and the distribution of available troops must be a simultaneous job.

After designating the different units which will assume the defense of each sector, the procedure to follow is to complete this by adding the supplementary means which are deemed necessary for the fulfillment of the mission assigned.

This reinforcement may consist of machine guns, mortars, artillery weapons, communications, means for evacuation, etc., made available with the idea that the defense forces should be self-sufficient.

Another important factor is the distribution of the law enforcement agencies such as police and local guards, whose main duty is to protect the government and public offices for normal peaceful civilian activities. The distribution of such forces will logically be made in accordance with the nature and number of the weak points existing within the sector. It would be advisable to also assign certain groups such as sections or companies to survey and patrol suburban zones and crowded areas. Law enforcement forces are exceptionally fitted to accomplish missions in the suburbs because of their experience in this work.

The main part of the defense plan is complete when the available forces are distributed and the communication nets and the supply and services facilities are organized.

These plans will serve as a basis for the issuance of orders and instructions, both general and specific, covering all details of organization and execution of the defense plan.

Orders and Instructions

The whole plan may be summarized as a series of general and specific instructions, classified as follows:

(1) Instructions for the enforcement of preventive measures in case of alert.

(2) General orders, or instructions, for application of the defense plan.

(3) Several specific instructions for the organization and activation of definite services (communications, ordnance, supply, etc.).

Normally, each copy of the general or specific instructions will contain maps as inclosures, drawn to a large scale and indicating the layout of sectors, command posts, weak points, communication centers, etc., of the built-up area.

These instructions will be distributed in sealed envelopes, with definite instructions and codes for their opening. The code instructions for opening can be given by telephone at any time.

A defense plan is something that can not be left to improvisation at the last moment. It contains many details to be covered and considered, many conflicting opinions that must be brought into coordination, many orders to be issued, and extreme measures to enforce.

The work involved is extensive, complex, and tedious because, besides the first steps in planning, it includes a distribution of duties, assignment of certain technical surveys to definite officials, performance of other surveys, etc. All this work is well compensated for by the knowledge and certainty that everything is well provided for, and that if the plan must be put into effect, a few telephone calls and the exchange of code messages would bring into action the whole defense plan with astonishing speed. Such speed might perhaps be enough to bog down a revolt, which otherwise being a surprise, would at its beginning defeat any other plans which might be put into effect.

It is well to remember the old proverb: "He hits twice who hits first."

The preparation of nations for war today is total in concept; it is not enough for a small professional group to look after the territory and be the custodian of the political independence of the nation; now it is for all the people, with all their energies and their spiritual and material richness to remain alert in order to safeguard their physical and moral inheritance.

Major General Alfredo R. Campos in *Cior*, Uruguay